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ABSTRACT

Designed to provide individualized instruction in English and mathematics, the academic resource center (ARC) component is one of three instructional components of the Research for Better Schools' career education program and is composed of four items. The first item, the ARC basic information series, provides ten leaflets which discuss (1) the student population, (2) selecting a site, (3) the professional staff, (4) equipping the ARC and establishing the information flow, (5) the ARC aide, (6) orienting students, (7) setting up the ARC, (8) orienting interested observers, (9) initiating placement procedures, and (10) assessing the implementation. The second item found in the ARC component is an administrator guide which highlights budget allocation, staff appointments, and the use of implementation committees. The ARC teacher's guide contains information designed to ease the shift to individualized instruction. The final item is a handbook for aides which outlines the duties and responsibilities of the ARC aide. (LRA)

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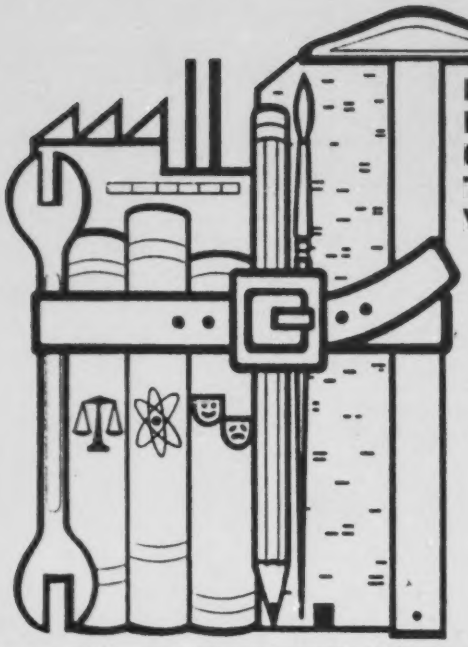

EDUCATION IS GOING TO WORK

Research for Better Schools Career Education
Academic Resource Center

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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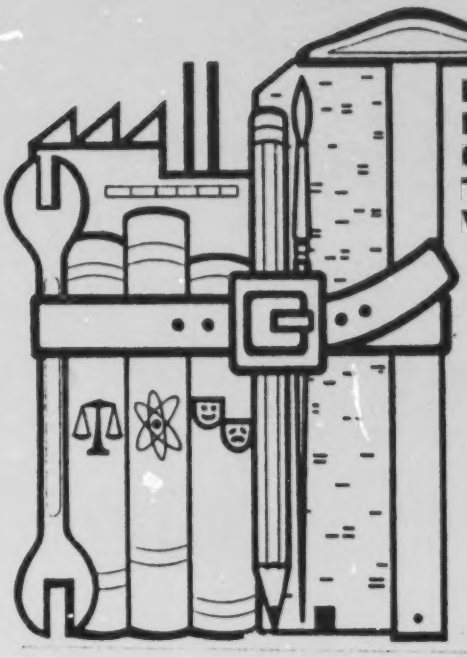

Implementing the ARC: SUGGESTIONS TO THE ADMINISTRATOR

Research For Better Schools
Philadelphia, Pennsylvania
1975

RESEARCH FOR BETTER SCHOOLS, INCORPORATED (RBS), is a private, non-profit educational research laboratory located in Philadelphia, Pennsylvania. IMPLEMENTING THE ARC: SUGGESTIONS FOR THE TEACHER is part of a series of curriculum and procedural materials developed by the RBS CAREER EDUCATION PROGRAM (Louis M. Maguire, Director) for a pilot project in experience-based career education (EBCE). Additional materials in this series include:

BASIC INFORMATION SERIES

IMPLEMENTING THE ARC: SUGGESTIONS TO THE ADMINISTRATOR

HANDBOOK FOR AIDES

THE ARC: QUESTIONS AND ANSWERS FOR THE STUDENT

IMPLEMENTING THE ARC: SUGGESTIONS FOR THE TEACHER was prepared by Ethel Schmidt.
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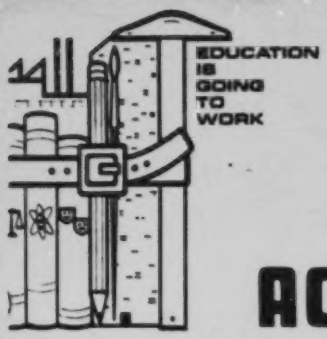

ACADEMIC RESOURCE CENTER

The ACADEMIC RESOURCE CENTER component of RBS CAREER EDUCATION provides for the improvement of student career development through a program of individualized instruction in English and Mathematics emphasizing student self-direction and performance criteria. The Center uses an instructional management system that is based on performance objectives and available curriculum materials, and which is responsive to graduation requirements, student interests, scheduling needs, and teacher adaptation and extension to additional subject areas. The implementation of the ARC also initiates the development by school staff of instructional activities for the Center to integrate experiential learning and/or career development into the school and to provide support for student learning activities in the community.

The ARC materials in the RBS CAREER EDUCATION LIBRARY describe the procedures for organizing and operating the Center. These materials include:

THE BASIC INFORMATION SERIES

Leaflet Number One:	The Student Population
Leaflet Number Two:	Selecting A Site
Leaflet Number Three:	The Professional Staff
Leaflet Number Four:	Equipping the ARC and Establishing the Information Flow
Leaflet Number Five:	The Aide
Leaflet Number Six:	Setting Up the ARC
Leaflet Number Seven:	Orienting Students
Leaflet Number Eight:	Orienting Interested Observers
Leaflet Number Nine:	Initiating Placement Procedures
Leaflet Number Ten:	Assessing the Implementation

IMPLEMENTING THE ARC: Suggestions to the Administrator

IMPLEMENTING THE ARC: Suggestions for the Teacher

HANDBOOK FOR AIDES

THE ARC: Questions and Answers for the Student

Information is also included on the individualized English and Mathematics curricula developed by RBS to teach basic competencies in the *ARC (ILA COMMUNICATION SKILLS* and *ILA MATHEMATICS)* and on ordering additional copies of ARC materials and forms.

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FOREWARD

The ARC (Academic Resource Center) is one component of the RBS Career Education Program. It is a centrally located work space in which students have access to a supportive and knowledgeable staff and a wide range of appropriate instructional materials. The students use the resources of the ARC to help them sort and integrate knowledge and acquire new skills and insights suited to their emerging career goals.

Administrative decisions critical to the effective implementation of an ARC are highlighted in this booklet: budget allocation, staff appointments, and the use of implementation committees are discussed.

I. BUDGET ALLOCATIONS FOR THE ARC

At the pilot site, the ARC was used as the vehicle for conveying the total English and mathematics curriculum to 300 students who represented the total achievement range of a large city high school. The budget figures found in this booklet reflect this situation. These figures can be used as guides for implementation. It would be advisable to compare the pilot and projected implementations in order to identify differences that should be reflected in the allocation of funds before making a firm budget.

SUMMARY

Budget Allocations for the ARC at the Pilot Site
(300 students)

INSTRUCTIONAL EQUIPMENT	$ 3,095.00
INSTRUCTIONAL MATERIAL: MATHEMATICS	$12,000.32
INSTRUCTIONAL MATERIAL: ENGLISH	$ 8,036.80
TOTAL	$23,132.12

INSTRUCTIONAL EQUIPMENT

Budget Allocations for the ARC at the Pilot Site
(300 students)

Unit	Cost per Unit	Number of Units	Total
Four drawer file cabinets	100.00	14	$1,400.00
Metal book cases, each converted to contain 32 student bins	55.00	10	550.00
Film strip viewers for individual viewing	24.50	10	245.00
Tape recorders, cassette type, each with ear phones	50.00	15	750.00
Storage cabinets for audio-visual materials	75.00	2	150.00
Total			$3,095.00

INSTRUCTIONAL MATERIAL: MATHEMATICS

Budget Allocations for the ARC at the Pilot Site

(300 students)

Unit	Number of Units	Total
*ILA Mathematics	3 (for 150 students)	$ 8,000.00
Computational Skills Kit	1	130.05
Algebra Skills Kit	1	123.72
Holt Geometry	50	432.00
Holt Algebra I	50	414.00
Holt Algebra II	50	432.00
Algebra I Programmed	20	302.50
Algebra II Programmed	20	320.00
Plane Geometry Programmed	20	240.00
Games (3)		25.40
Math Applications Kit	1	80.65
Duo-tang folders for student use, accordion folders for storage of ILA material, other clerical supplies		1,500.00
Total		$12,000.32

*These materials are purchased in modules designed for 50 students. (See *Basic Information Series: Leaflet IV.*) In the pilot site approximately half (150) of the student body used these materials for at least part of the year.

INSTRUCTIONAL MATERIAL: ENGLISH

Budget Allocations for the ARC at the Pilot Site

(300 students)

Unit	Number of Units	Total
*ILA Communication Skills	3 (for 150 students)	$ 4,500.00
Reading and Composition	300	378.00
Individualized Literature	400 (paperbacks)	1,120.00
Leaflets: Skills for Adult Life		102.00
RFU Kit		90.30
Programmed Grammar	60 (3 levels)	198.00
World Book Encyclopedia	1	148.50
Duo-tang folders for student use, accordion folders for storage of ILA material, other clerical supplies		1,500.00
Total		$ 8,036.80

*These materials are purchased in modules designed for 50 students. (See *Basic Information Series: Leaflet IV.*) In the pilot site approximately half (150) of the student body used these materials for at least part of the year.

II. DECISIONS AFFECTING THE BUDGET

The Focus

The foreward of this booklet establishes the parameters of an ARC. These parameters are broad enough to tolerate considerable variation in characteristics of a specific student body, the number of students, the subjects and credits available. Administrators responsible for planning an ARC will find it helpful to specify the focus of the projected implementation before proceeding further.

Approximations of the number of students at each grade level, the achievement range to be dealt with, any specific selection criteria, the subjects to be taught and credits granted are needed. A planning sheet has been provided for your use. The empty title space just under the column entitled OTHER on that form is to be used to identify any specific characteristics that you may plan to use as a basis for selection of students.

ACADEMIC RESOURCE CENTER PLANNING INFORMATION									
STUDENT BODY	DISTRIBUTION ACCORDING TO ACADEMIC ACHIEVEMENT			SEX		OTHER	COURSES OFFERED		
	Below Expected Level	At Expected Level	Above Expected Level	M	F		English/Cr.*	Mathematics/Cr.*	Other/Cr.*
Grade 9									
Grade 10									
Grade 11									
Grade 12									

*Cr. stands for Credits to be awarded for completion of the course.

Area and Equipment Needs

Immediately following the determination of the ARC focus, the area to be converted to an ARC should be selected. It is quite possible that renovation will be required; e.g., additional electrical outlets or carpeting. If so, funds must be allocated for this purpose. The pilot site renovation budget has not been included in this document because needs vary so widely from building to building that a sample budget would be of no value.

Three variables having major impact on the amount of floor space required for the ARC are listed below. The comment below each variable relates that variable to the pilot site.

1. *The number of students to be accommodated.*
   In the pilot site, 28 square feet per student proved to be adequate.
2. *The nature of the student body.*
   Students at the pilot site were randomly selected from students who applied. The applicant pool from which students were selected reflected the make-up of the school at large in regard to academic achievement, sex, and racial or ethnic background. It is likely that more floor space per student would have been required had student selection been restricted to a limited range; e.g., the emotionally disturbed, the poorly motivated, or those with chronically poor work habits.
3. *The scheduling scheme employed.*
   In the pilot site, every student spent one day a week in career development activities at community locations. Days assigned for these activities were Tuesday, Wednesday, and Thursday. As a result of this scheduling scheme, the total number of students in the ARC on each of those three days was reduced by one third. The total complement of students had to be accommodated on the two remaining days. Uneven scheduling of this type ties up more floor space for a given population than would be the case if career development activities were scheduled five days a week. This would reduce the daily student load by one-fifth. Whenever possible, an even pattern of scheduling is advisable.

Once the site has been selected, attention will turn to furnishing and equipping the area. Basic furnishings: e.g., students' and teachers' desks and chairs, are likely to be available in the school, although they will have to be moved to the ARC location. In any case, a budget item is needed to reflect either the purchase of new furniture or the relocation of furniture already at hand.

An examination of the equipment currently on inventory may reveal some of the items listed in the pilot site equipment budget. If so, it is possible that some of those items are unused or little used and could easily be transferred to the ARC site, thus reducing expenditures for instructional equipment.

Equipment needs are also influenced by the subjects taught and by the characteristics of the students using the center. The total range of secondary mathematics and English was taught in the pilot site. The addition or deletion of one of these subjects, or the limitation of an existing discipline to that segment of it deemed suitable to single groups of students (e.g., slow learners or high achievers) would undoubtedly necessitate changes in both equipment and instructional materials.

Staffing Pattern

The figures on your planning sheet define the student body. It is now possible to establish the staffing pattern.

Individualized instruction makes heavy demands upon the conscientious teacher. No longer can the teacher make one preparation for one course, or even one preparation for one period. Each teacher must be alert to student needs and must develop the capacity to diagnose and prescribe for students working at various points on a continuum that ranges from approximately third grade level through college. This level of responsiveness cannot be maintained when the teacher/student ratio exceeds 1 to 20 during any given period. Therefore five teachers, one of whom is designated as Coordinator, are recommended for a unit of 300 students. This recommendation is based on the following assumptions:

1. The school day is divided into six instructional periods.
2. Each teacher has one preparation period daily.
3. Each ARC student takes four periods of English and four periods of mathematics per week.
4. Each student participates in career development activities at community locations one day a week. Therefore, one-fifth of the student body will be off site each day.
5. Eighty students, two English and two mathematics teachers will be scheduled into the ARC every period, every day.

A precise definition of the teaching staff then becomes:

English Teachers	2.4
Mathematics Teachers	2.4
Coordinator (one of the ARC teachers)	.2

One aide is recommended for every 150 students. The aide is not an instructional aide but is responsible for clerical duties.

III. WHEN TO APPOINT STAFF

Staff appointments and orientation are discussed in detail in *Leaflets III* and *V* of the *Basic Information Series*. Comments in this booklet concern the timing of those appointments.

Teachers

Moving from a traditional classroom to an Academic Resource Center represents a major role change for most secondary teachers. If teachers can be involved in planning for the implementation of the ARC, they will begin to visualize themselves working in it. This gradual introduction to the new role facilitates adjustment. Therefore, it is wise to appoint the ARC teachers as early in the planning stage as possible.

Aides

In this program, aides do not perform instructional duties. Since their tasks are clerical in nature, they need not be involved in the planning stage. Two orientation days and five working days before the opening of the ARC should be adequate.

IV. IMPLEMENTATION COMMITTEES

The broad outlines of the program have now been drawn. Your planning sheet supplies a general description of the student body, space has been assigned, the operating staff has been specified, and teachers designated.

The assumption is made that planning for the ARC is taking place in the school year immediately preceding the implementation year. If this is the case, it means that one more set of tasks has been added to days already full. Therefore, as soon as the student population has been described and teachers appointed, it is recommended that committees be appointed and charged with the completion of specific tasks within specified time periods. The overall plans are now sufficiently defined to permit a number of individuals to assume responsibility for moving the project from this point to the actualization of a smoothly running ARC. This sharing of the burden will lighten the load for all.

Three ad hoc committees, Orientation, Site Preparation, and Implementation Assessment, will be needed. One member of an already existing student identification group should also be assigned responsibility for ARC issues. The purposes of these groups are outlined on the following pages. Detailed descriptions of their tasks are found in the *Basic Information Series* (the applicable leaflets of that series are referred to by number in the discussion). Individual committee members must have the specific skills necessary for the tasks to be performed. They may be drawn from any segment of the school staff; they need not be the individuals who will be directly responsible for the day-to-day operation of the ARC after its opening.

Student Identification Committee

Unless the ARC is the only program component being implemented, some staff members, quite probably guidance people, must identify and recruit students. It is necessary that at least one member of that group be charged with the specific responsibility of providing the ARC staff with pertinent information about each student selected. (See *Leaflet I.*) Student identification must be completed and all information turned over to the ARC staff before the beginning of aide orientation.

Orientations Committee

Five orientations must be scheduled: (1) for the ARC professional staff, (2) for aides, (3) for parents of the ARC students, (4) for professional staff not directly involved in the ARC, and (5) for ARC students. The orientations committee is responsible for scheduling and making all necessary arrangements for each session. (See *Leaflets III, V, VII* and *VIII.*) This committee will also plan and carry out an assessment of each orientation if such an assessment is desired.

Site Preparation Committee

This committee prepares orders for instructional material and equipment. It supervises the placement of furniture so that a functional and visually pleasing ARC results. (See *Leaflets IV* and *VI*.)

Specialists in English, mathematics and, if possible, individualized instruction make up this committee. One of its members should have had some administrative experience. The ARC teachers will probably want to serve here.

Implementation Assessment Committee

This committee assesses the actual implementation, identifies strengths, defines problems, and proposes solutions. (See *Leaflet X*.) Although their actual tasks will not begin until six or eight weeks after students have started working in the ARC, their plans must be laid well ahead and be shared with all.

V. MAINTAINING COMMUNICATION

Communication, always a matter of concern, demands even more attention when an innovation is introduced. Accurate, realistic, advance publicity can do much to avoid the confusion that results when participants or observers assume that the innovation is designed to respond to one set of needs, when, in reality, it is a response to quite a different set. This section contains some general suggestions for assuring a timely flow of useful information.

Implementation Committees

All committee members should be exposed to a thorough explanation of the purposes and procedures of the entire program. A discussion of the place of the ARC in the program will help bring into focus the extent and nature of change demanded for a successful implementation. The orientation will construct a common frame of reference.

While all committee members are present, each committee is charged and given the time frame within which it will work. The appropriate leaflets from the *Basic Information Series* are distributed and a reporting mechanism established.

Some administrators may want a written progress report from each committee at regular intervals. If this is the preference, it is helpful to distribute copies of such reports to members of other committees. In this way, all concerned with the implementation are fully aware of problems encountered and adjustments made.

Another, less formal, means of reporting progress may be desired. This will probably take the form of regular meetings attended by all committee members (committee chairmen, if the implementation is a very large one). These meetings are chaired by the administrator. Informal, oral progress reports are made, problems noted, solutions proposed, and reactions accepted.

Total Staff

Any innovation can be weakened, and even destroyed, if it is subject to antagonistic behaviors by staff not actually involved in the implementation. Again, such destructive behavior is often the result of misunderstanding. Full and accurate disclosure of all pertinent information will guard against misinterpretation. Usual forms of communication serve well here; i.e., weekly bulletins, question and answer periods among general staff and members of implementation committees, etc. The general staff needs to be reminded that their support is invaluable to their colleagues. (*Leaflet VII* discusses this.)

It is not unheard of for antagonism to arise from jealousy. Occasionally an individual not involved in the implementation activities will feel slighted and will endeavor to downgrade the innovation. Again, the only reasonable response to such a situation is openness on the part of the administrator. A cure is probably impossible but the thoughtful administrator, who is willing to listen and try to understand, can sometimes forestall such reactions.

A third source of destructive behavior can originate with those fine teachers who sincerely believe that a day a week out of class results in irretrievable loss to students. Those teachers can be involved as resources to the ARC teachers, perhaps to devise independent study activities for students to make up that loss. This will not solve the problem, but alleviate it. At the same time, it may also serve to translate the creative abilities of those teachers into student benefit.

The Public

Orientation is planned for the parents of ARC students (*Leaflet VII* discusses this). Information concerning the need for an ARC, the way in which it is expected to benefit students, and comparison between the ARC and the classroom that the student has experienced up to this point should be made available to the public. Press releases, the school publication, bulletins to parents, or parent education seminars are all useful devices.

At the heart of all of the suggestions found above is the belief that an alert, sensitive, open administrator is more likely to guide innovation successfully than is one who ignores problems and is unresponsive to his staff and the public.

IMPLEMENTATION TIME LINE

	Administrators become acquainted with and oriented to RBS Career Education
	Decision to implement is made
	Administrative guidelines including budget allocations complete
	Committees appointed: 1. Member of student identification group singled out as ARC liaison 2. Orientations 3. Arc equipment and organization 4. Implementation assessment
	Professional staff orientation: five half-days
	Furniture and instructional equipment orders placed
June 1	Instructional materials order placed
August 15	ARC SET UP
	RBS consultant day
	ARC Teachers start to work: two weeks before opening All student information in hands of teachers
	Aides' orientation: two full days Aides start to work: one week before school opens
	RBS consultant day
	Orientation for non-ARC professional staff
	Student orientation: three days, four sessions per day
September 2	ARC OPENS
November 15	Implementation assessment report received

ACADEMIC RESOURCE CENTER

PLANNING INFORMATION

STUDENT BODY	DISTRIBUTION ACCORDING TO ACADEMIC ACHIEVEMENT			SEX		OTHER	COURSES OFFERED		
	Below Expected Level	At Expected Level	Above Expected Level	M	F		English/Cr.*	Mathematics/Cr.*	Other/Cr.*
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Grade 11									
Grade 12									

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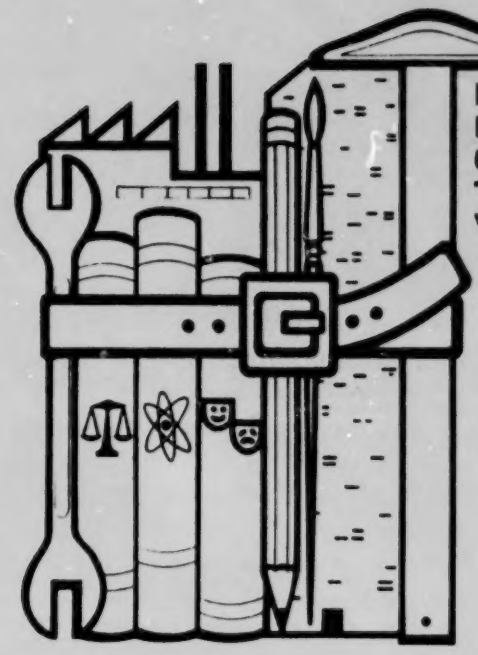
Research for Better Schools, Incorporated
1700 Market Street, Suite 1700
Philadelphia, Pennsylvania 19103
Robert G. Scanlon, Executive Director



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IMPLEMENTING THE ARC

SUGGESTIONS FOR THE TEACHER

Individualized instruction differs considerably from the instructional mode employed in many secondary classrooms. The shift to individualized instruction is not an easy one for many teachers to make. When, as in an ARC, an open area is the setting, problems to be confronted loom even larger. The information contained in this booklet is designed to ease the transition.

I. TEACHING STYLE

One way to start thinking about teaching in an ARC is to contrast selected features of an ARC with comparable aspects of a classroom. The statements below do this. As you read through them, make a mental note of any ARC teaching behaviors that would be uncomfortable for you at the present time.

CLASSROOM	ARC
Period starts. Students enter, sit down. Roll is called.	Period starts. As the students enter, they go to the bins, get their folders, deposit their attendance cards in the appropriate container, and begin to work.
Teacher talks to the whole class.	Teacher talks to students individually or in groups of two's or three's.
Students wait for directions.	Each student has a personal study guide which specifies just what he/she is to do to achieve mastery of a specific performance objective.
Teacher, through discussion, questioning, and explanation, tries to keep the more advanced students interested, while making sure that the slower learning student is not falling too far behind.	Teacher moves quietly from student to student, encouraging, explaining, or discussing. All verbal interchange is geared to the needs of just one student at a time.

Teacher projects voice so that students will attend and respond.	Teacher exercises authority only when student behavior is immature enough to require it.
The disruptive student stops class work.	The disruptive student is handled quietly, often disturbing only those in the immediate vicinity.
Teacher makes a class assignment.	Teacher and student together negotiate an individual learning contract.
Teacher uses the first part of the period to establish the tone for the whole period, to lead a discussion, or to present a new concept.	Teacher uses the first ten or fifteen minutes of the period to observe students, note work habits, and key into special problems.

In short, the teacher no longer occupies center stage. In fact, no one does. Each student is so occupied with his own learning problem that no one need even be on stage.

The teacher functions in the ARC as learning manager, tutor, and resource to the student. Skillful management is needed if the teacher is to function as described above.

II. MANAGING INDIVIDUALIZED INSTRUCTION

This section deals with the management of the ARC. If ARC teachers are not to drown in minutiae, they must institute a management system immediately and discipline themselves to maintain it conscientiously.

The ARC management system exists to assure each student of adequate professional guidance and support as the student devises and pursues a personal learning plan. The foregoing statement has implications for the information that a teacher must have about new student's academic objectives, achievement level, and course of study. Since each teacher is usually responsible for guiding a minimum of 60 students per week, it would be unrealistic to assume that the teacher could carry this amount of information in his/her head. *Equipping the ARC and Establishing the Information Flow, Leaflet IV* of the *Basic Information Series,* discusses the forms and the filing system that make information available when it is needed. These directions will not be repeated here. Suffice it to say that the system should be in place and ready for use by the time the first student arrives.

Use of Time

The ARC teacher uses the first ten minutes of each period to observe students. This observation serves two purposes: (1) to check the operational level of the ARC, and (2) to highlight students who need help in developing serviceable work habits. Some comment on each purpose follows.

The operational level of the ARC is poor if the majority of students use the first ten minutes of the period for social conversation. *Orienting Students,* Leaflet VII of the *Basic Information Series,* stresses the importance of self-discipline in the ARC. If students consistently wait for direction before beginning work, it is evident that self-discipline is lacking. Reorientation is probably in order for those individuals. The need, once noted, should be acted upon speedily, for students quickly detect a lack of purpose on the part of a teacher. Reorientation sessions for some/all students are usually needed two, possibly three, times during the first year of operation.

As useful as reorientation sessions are, they may be only half of the solution if the students who demand teacher attention at the start of the period are justified in doing so. In that case, the teacher needs to look to his/her prescribing techniques. Every student should have a study guide in his/her folder. Only in very rare instances should the student have completed all of the tasks outlined in that guide. Prescribing techniques are discussed in Section III of this booklet.

The student whose work habits are detrimental to his academic progress is observed carefully during the observation time at the beginning of the period. The precise nature of the problem is identified and a course of action designed to help the student overcome this problem.

About ten minutes into each period, the ARC teacher begins to move from student to student, encouraging, correcting, discussing, and prescribing. The teacher will contact *every* student twice, at least, during the course of the period.

Work habits are again observed at the close of the period. If the Center is to remain habitable, each person must replace material or equipment that he/she has used during the period. Individuals needing new study guides before the next period leave their folders in a place designated for that purpose. All other students place their folders in their own bins.

Use of Space

There is more movement in an ARC than is usually found in a classroom. Students go to carrels to work, use audio-visual equipment, consult with other students, get and return dictionaries, volumes of the encyclopedia, mathematical or word games, etc. Teachers do not sit at a teacher's desk. Instead, they move from student to student.

The legitimacy of the movement is reflected in the arrangement of the Center. Instructional material and equipment are easily accessible. Pathways between students and materials and between student and student are unobstructed. Confusion is reduced if this concept is accepted and acted upon. *Setting up the ARC,* Leaflet VI of the *Basic Information Series,* discusses this in more detail.

Use of Records

All ARC records are kept for the benefit of the student. Therefore, all information contained in those records is shared with the student. The teacher and the student use records of attendance, past performance, and previously taken courses to determine long range objectives and to evaluate the student's progress.

Conferences are called by either teacher or student whenever one or the other feels a need to discuss a problem or to adjust a study guide. The teacher assumes a directive posture only when the student is not mature enough to direct himself/herself. Each student is encouraged to take the lead in planning his/her own program.

One final comment about managing individualized instruction: an ARC is no place for a procrastinator. There is time enough to deal with each task as it comes along, but tasks follow one another so quickly that if they are neglected, it soon becomes impossible to catch up.

III. PRESCRIBING FOR THE INDIVIDUAL STUDENT

To prescribe for an individual is to construct a learning plan for him/her. In the ARC, each teacher constructs individual learning plans for the subject for which he/she has responsibility. The teacher and student for whom the prescription is to be written sit down together and review relevant portions of the student's school and personal history and consider career goals and personal preferences. Then, together, they construct a learning plan. When a large group of students enter the ARC at one time, as at the start of the school year, it is difficult to find time to plan with each individual. *Initiating Placement Procedures, Leaflet IX* of the *Basic Information Series*, discusses this problem and recommends procedures for handling it.

This section of this booklet is devoted to three aspects of prescription writing: (1) establishing objectives, (2) selecting instructional settings, and (3) selecting instructional materials.

Establishing Objectives

Two terms are used frequently in this section: (1) performance objective and (2) mastery. A *performance objective* is a statement that specifies the behavior that a student must exhibit under certain conditions in order to demonstrate mastery. *Mastery* is that level of accuracy that the student must exhibit in order to show that the behavior specified in the performance objective is in his/her repertoire. ARC objectives are written in performance terms with a mastery level indicated. Some examples follow.

1. ILA objectives are performance objectives. The student is considered to have demonstrated mastery of an ILA objective when he/she has responded accurately to 85 percent of the items designed to test that particular objective.
2. An example of a teacher/student prepared objective:

   The student will write a minimum of three paragraphs on a topic of personal choice. Complete sentences, properly punctuated, will be used. Correct spelling and legible handwriting will be required.
3. A long range objective: Complete Algebra I.
4. A short range objective for the student who wants to complete Algebra I might be: Locate negative integers on a number line with 100 per cent accuracy.

Skill in establishing objectives for individualized instruction will not come overnight for the teacher who has had no reason to think in these terms before undertaking the responsibilities of ARC instructor. Talking things over with fellow instructors, critical evaluation of prescriptions, and careful observation of students will soon produce the necessary skills.

Selecting the Instructional Setting

When the student and teacher have agreed upon an appropriate academic objective, an instructional setting must be specified. The ARC offers a number of possibilities. A list of settings and conditions for implementing each follow. Codes have been included because it is sometimes desirable to indicate the setting by code number. Often this is unnecessary since the student's study guide makes the setting obvious.

CODE	SETTING
01	*Pre-planned Teacher Instruction:* One teacher works with one student for five or more minutes at one sitting.
02	*Peer Tutor:* The learner is tutored by a fellow class member. Tutoring is structured by the instructor.
03	*Small Group Instruction:* Two to five learners, identified as having approximately the same clearly defined needs, are brought together for pre-planned teacher instruction. The instruction is targeted to the defined need and the group is dispersed as soon as the teacher is satisfied that its members have achieved mastery of the needed skill.
04	*Large Group Instruction:* Same as 03 except for the size of the group. A large group is, by definition, a group of six or more.
05	*Other Texts:* Used when a single text or set of materials has been designated as the major route to the attainment of a long range objective. An example of this might be ILA, a specific publisher's algebra book, or a programmed grammar series.

06	*Independent Study:* A student identifies a problem or topic that he/she wishes to investigate. The student and the instructor agree on the definition of the problem or topic, the general route to be followed by the investigator, the type of documentation to be produced, and the time lines that are to be met. Although independent study may be carried on at the student's convenience, the student must report progress regularly at prearranged conference periods.
07	*Media Other than Print:* May be used alone or in conjunction with other codes.
08	*Tutor of Others:* The student tutors another. Tutoring is structured by the teacher.
09	*Manipulative Devices:* Games, puzzles, etc. May be used alone or in conjunction with other codes.

Selecting Instructional Material

Instructional materials may range from carefully sequenced and structured materials like ILA to an especially appropriate newspaper article. Programmed texts, teacher-made material, sections of texts originally purchased for class use, etc., all go to make up the pool from which the teacher chooses. The teacher must know the instructional material in the ARC. It is not enough to know just the titles and general location of materials, but the teacher must be familiar with content of materials related to his/her area of specialization as well. Such knowledge is indispensable to the instructor who is expert in constructing learning prescriptions.

IV. INTERACTING WITH STAFF AND VISITORS

A smoothly functioning ARC presents a business-like appearance. A good deal of movement is observed and one is conscious of the hum of conversation. Interpersonal tension is minimal. Observers quickly note that movement and conversation are related to individual learning tasks. They become aware of the purposefulness of staff as they move among students, encouraging, assisting, and generally focusing student attention on learning activities.

The ARC described in the foregoing paragraph did not just happen. All individuals concerned with implementation attended conscientiously to every detail. They knew what they wanted and exerted considerable effort to achieve it. This section comments briefly on some of the human relationships involved in implementing and maintaining a successful ARC.

ARC Instructors

In the ARC, operational problems are handled cooperatively. This will seem strange to the teacher who has always worked in a closed area. Student/teacher relationships, the sound level of the teacher's voice, the teacher's promptness or lack of it, location of instructional materials, etc., suddenly become community concerns. This period of concern will be short-lived for the member of a staff made up of responsible, caring, mutually supportive individuals. Such a staff will face problems honestly, effect solutions and make adjustments, even uncomfortable ones, graciously.

Aides

Aides are responsible for clerical tasks only. They have *no* instructional responsibility. Teachers direct and evaluate the aides' work. Aides share in decision-making when those decisions affect clerical tasks. They do not share in making decisions relating to the organization of students for instruction, the content of student programs, or student marks.

Regular mid-morning and mid-afternoon *breaks* are established for aides and respected scrupulously by teachers and students.

Discipline is the responsibility of the professional staff. If students are discourteous to aides, teachers intervene. Should an aide be discourteous to a student, the teacher initiates a private conference with the aide at which the problem is stated, discussed, and, if possible, resolved. The details of such incidents are reported

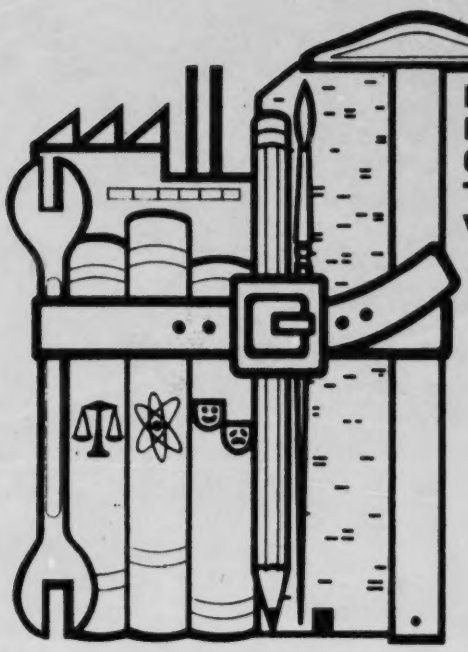
to other ARC teachers at the following staff meeting because it is important to support the concept of professionals acting together to construct and maintain an excellent learning environment. As in all human relationships, courtesy, consideration, and honesty are the watchwords.

Visitors

If the ARC is a unique happening in a school, there will be many visitors, and teachers can easily find themselves spending time with visitors to the detriment of students. Fortunately, though, to foresee this situation is to avoid it. The suggestions that follow may be helpful in structuring visits so that problems are avoided.

1. Assign someone to greet visitors. This individual should not be a member of the ARC staff. It is appropriate that an administrator greet some visitors and while a gracious secretary may guide others.
2. Designate an area outside of the ARC as the place for visitors to assemble for a briefing.
3. Give each visitor a statement of the philosophy of the ARC and a description of the program and the student population.
4. Tell visitors the length of time that they may observe in the ARC.
5. Emphasize that the ARC is designed as a resource for students and ask visitors to avoid engaging students or teachers in conversation.

If all staff members insist that visitors remain observers and do not permit them to preempt staff and student time, there will be no *visitor problem*.



HANDBOOK FOR AIDES

Research For Better Schools
Philadelphia, Pennsylvania
1975

RESEARCH FOR BETTER SCHOOLS, INCORPORATED (RBS), is a private, non-profit educational research laboratory located in Philadelphia, Pennsylvania. HANDBOOK FOR AIDES is part of a series of curriculum and procedural materials developed by the RBS CAREER EDUCATION PROGRAM (Louis M. Maguire, Director) for a pilot project in experience-based career education (EBCE). Additional materials in this series include:

BASIC INFORMATION SERIES

IMPLEMENTING THE ARC: SUGGESTIONS TO THE ADMINISTRATOR

IMPLEMENTING THE ARC: SUGGESTIONS FOR THE TEACHER

THE ARC: QUESTIONS AND ANSWERS FOR THE STUDENT

HANDBOOK FOR AIDES was prepared by Ethel Schmidt.
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HANDBOOK FOR AIDES

I. WHY AIDES?

The ARC, or Academic Resource Center, provides individualized instruction in English and mathematics. Individualized instruction is different from class instruction. The teacher does not present a topic and/or a single assignment to a whole class. Instead, each student has his/her own topic and specific assignment consisting of a set of learning tasks that are just difficult enough for the individual student. Each student works as quickly as possible, or as slowly as he/she must, to achieve mastery of each task. The student must demonstrate mastery by taking a test to show that he/she can actually perform each task: e.g., add fractions, write a coherent paragraph, etc.

When each student pursues an individualized learning program, accurate records are necessary. The amount of clerical work needed to maintain such records is so great that a teacher doing all of it would have very little time to teach. Therefore, aides are employed to perform clerical tasks.

As an aide, you will have no instructional responsibility. Behave toward each student just as you would toward any individual coming into a place of business. Maintain a courteous, pleasant, and business-like attitude at all times. This will not always be easy, since students are sometimes immature and often are not skilled at transacting business. On occasion, a student may be rude or disrespectful. When this happens, don't feel obliged to correct the student. Refer the entire matter to the nearest teacher and move away. If you remain calm and courteous, the student's behavior will be no reflection on you. It just tells the teacher that that particular student still has a great deal to learn.

II. WHAT IS THE FILING SYSTEM?

Before students begin to work in the ARC, files must be established for: (1) enrollment/attendance cards, (2) student information, (3) student's work folders, and (4) instructional materials called *Individualized Learning for Adults (ILA).* Each is discussed in the following paragraphs.

Enrollment/Attendance Cards.

Enrollment/attendance cards (5" x 8") are filed alphabetically in a file box on the aide's desk. Side 1, *ARC Enrollment*, will be completed as of the student's enrollment date. Arrange all cards in alphabetical order according to the student's last name. Do *not* separate these cards according to grade or teacher.

ARC ENROLLMENT

Student _____ Sex _____ Date of Birth _____

Date of Enrollment _____ Grade at Enrollment _____

Career Objective, if known _____

SECONDARY ENGLISH COURSES COMPLETED

Course Title	School Year	Mark

SECONDARY MATHEMATICS COURSES COMPLETED

Course Title	School Year	Mark

From these cards, prepare a list of students. List students' names in strict alphabetical order, last name first. Do not separate according to grade, sex, teacher, or anything else. Number each name.

Using the list that you have just prepared, enter the number assigned to each student beside *File No.* on Side 2 of the *enrollment/attendance card.*

ARC ATTENDANCE

File No. _____

School Year	Subject	REPORT PERIODS											
		1		2		3		4		5		6	
		*Poss.	*Act.	*Poss.	*Act.	*Poss.	*Act.	*Poss.	*Act.	*Poss.	*Act.	*Poss.	*Act.

*Poss. – Possible no. of periods student could have attended
*Act. – Actual no. of periods student attended
Complete following if student is removed from ARC rolls
Effective Date _____
Reason _____

Place the cards in the file box. Make two copies of the enrollment list for each ARC staff member, teachers and aides. Post one list near your desk.

Student Information.

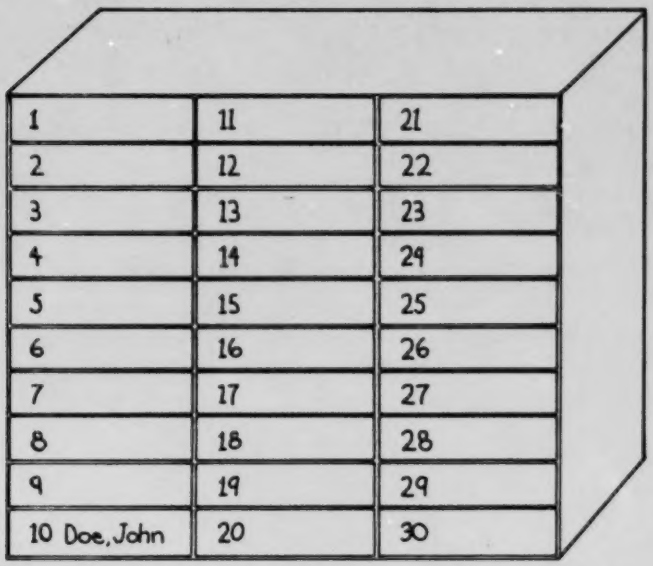
Student information is maintained in centrally located file cabinets. Use the student list and prepare a pendaflex folder or an accordion-type folder for each student. In each student folder, place two manila folders, one with the student's file number and *English* on it and the other marked with the student's file number and *Mathematics.*

Student's Work Folders.

The student's current work is kept in colored duo-tang pocket folders. Prepare two folders for each student. The student's number, name, and the subject (*English* on a red folder and *Mathematics* on a blue one) should appear on each label: e.g., 10 Doe, John *English* 10 Doe, John *Mathematics*

The duo-tang folders are kept in bins on open shelves. Each shelf is about 3-1/2 inches high and 14 inches wide. These are often bookshelves that have been converted for this use.

Each student has his/her own bin. Use the student list and prepare a label for each bin. Put each student's number and name on the label. Place the students' English and mathematics folders in their bins.



Instructional Materials: ILA.

ILA stands for Individualized Learning for Adults. There are 77 ILA Mathematics tests, 282 Mathematics booklets, 75 Communication Skills tests, 119 Communication Skills booklets, and keys for scoring tests.

ILA materials are filed according to *Level*, *Area*, and *Skill Number*. *Level* takes precedence over both Area and Skill Number. *Area* takes precedence over Skill Number.

ILA is published by Research for Better Schools, Inc. You will probably find many boxes of this material waiting to be unpacked. In each box, you will find sets of booklets, tests, etc., each separated by a sheet of colored paper.

Separate tests from instructional booklets. Tests are easily identified by the colors of the paper on which they are printed: *Entrance Tests* are on yellow paper, *Prescription Indicators A* on blue, and *Prescription Indicators B* on green paper. These materials should be filed in accordion folders in the order specified on the

following pages. Tests or booklets you have left over should be stored in an accessible place.

Keep all Entrance Test keys and Prescription Indicator keys at your desk for marking student papers. Students do not mark their own papers.

Information specific to ILA Mathematics.

Before opening boxes, prepare one accordion file folder for each of the following items. You will need a total of 359 folders. Fill folders as boxes are opened. File according to the order given on the following pages, reading down, left column first. You will need about seven file cabinets, four drawers each. Store all surplus material.

Entrance Test Numeration – Place Value
Entrance Test Addition – Subtraction
Entrance Test Multiplication – Division
Entrance Test Geometry – Measurement
Entrance Test Applications

PRESCRIPTION INDICATORS – MATHEMATICS

Numeration - Place Value (N-PV)	Addition - Subtraction (A-S)
A-P.I. A N-PV	A-P.I. A A-S
A-P.I. B N-PV	A-P.I. B A-S
A-P.I. C N-PV	A-P.I. C A-S
A-P.I. D N-PV	A-P.I. D A-S
A-P.I. E N-PV	A-P.I. E A-S
A-P.I. F N-PV	A-P.I. F A-S
A-P.I. G N-PV	A-P.I. G A-S
A-P.I. H N-PV	A-P.I. H A-S

PRESCRIPTION INDICATORS – MATHEMATICS (Continued)

Multiplication - Division (M-D)

A-P.I.	A	M-D
A-P.I.	B	M-D
A-P.I.	C	M-D
A-P.I.	D	M-D
A-P.I.	E	M-D
A-P.I.	F	M-D
A-P.I.	G	M-D
A-P.I.	H	M-D

Geometry - Measurement (G-M)

A-P.I.	A	G-M
A-P.I.	B	G-M
A-P.I.	C	G-M
A-P.I.	D	G-M
A-P.I.	E	G-M
A-P.I.	F	G-M
A-P.I.	G	G-M
A-P.I.	H	G-M

Applications (APP)

A-P.I.	A	APP
A-P.I.	B	APP
A-P.I.	C	APP
A-P.I.	D	APP
A-P.I.	E	APP
A-P.I.	F	APP
A-P.I.	G	APP
A-P.I.	H	APP

B-P.I.	A	N-PV
B-P.I.	B	N-PV
B-P.I.	C	N-PV
B-P.I.	D	N-PV
B-P.I.	E	N-PV
B-P.I.	F	N-PV
B-P.I.	G	N-PV
B-P.I.	H	N-PV

B-P.I.	A	A-S
B-P.I.	B	A-S
B-P.I.	C	A-S
B-P.I.	D	A-S
B-P.I.	E	A-S
B-P.I.	F	A-S
B-P.I.	G	A-S
B-P.I.	H	A-S

B-P.I.	C	M-D
B-P.I.	D	M-D
B-P.I.	E	M-D
B-P.I.	F	M-D
B-P.I.	G	M-D
B-P.I.	H	M-D

B-P.I.	B	G-M
B-P.I.	C	G-M
B-P.I.	D	G-M
B-P.I.	E	G-M
B-P.I.	F	G-M
B-P.I.	G	G-M
B-P.I.	H	G-M

B-P.I.	B	APP
B-P.I.	C	APP
B-P.I.	D	APP
B-P.I.	E	APP
B-P.I.	F	APP
B-P.I.	G	APP
B-P.I.	H	APP

MATHEMATICS BOOKLETS

A	N-PV	1
A	N-PV	2
A	N-PV	3
A	N-PV	4
A	N-PV	5
A	N-PV	6
A	N-PV	7
A	N-PV	8
A	N-PV	9
A	N-PV	10
A	N-PV	11
A	N-PV	12
B	N-PV	1
B	N-PV	2
B	N-PV	3
B	N-PV	4
B	N-PV	5
B	N-PV	6
B	N-PV	7
B	N-PV	8
B	N-PV	9
B	N-PV	10
B	A-S	1
B	A-S	2
B	A-S	3
B	A-S	4
B	A-S	5
B	A-S	6
B	A-S	7
B	A-S	8
B	A-S	9
B	G-M	1
B	G-M	2
B	G-M	3
B	G-M	4
B	G-M	5
B	APP	1
C	N-PV	1
C	N-PV	2
C	N-PV	3
C	N-PV	4
C	N-PV	5
C	N-PV	6
C	A-S	1
C	A-S	2
C	A-S	3
C	A-S	4
C	A-S	5
C	A-S	6
C	A-S	7
C	A-S	8
C	M-D	1
C	M-D	2
C	M-D	3
C	M-D	4
C	M-D	5
C	M-D	6
C	M-D	7
C	M-D	8
C	M-D	9
C	M-D	10
C	M-D	11
C	G-M	1
C	G-M	2
C	G-M	3
C	G-M	4
C	G-M	5
C	G-M	6
C	G-M	7
C	APP	1
C	APP	2
C	APP	3
C	APP	4

MATHEMATICS BOOKLETS (Continued)

D	N-PV	1
D	N-PV	2
D	N-PV	3
D	N-PV	4
D	N-PV	5
D	N-PV	6
D	N-PV	7
D	N-PV	8
D	N-PV	9
D	N-PV	10

D	A-S	1
D	A-S	2
D	A-S	3
D	A-S	4
D	A-S	5
D	A-S	6
D	A-S	7
D	A-S	8
D	A-S	9
D	A-S	10
D	A-S	11
D	A-S	12
D	A-S	13
D	A-S	14

D	M-D	1
D	M-D	2
D	M-D	3
D	M-D	4
D	M-D	5
D	M-D	6
D	M-D	7
D	M-D	8
D	M-D	9
D	M-D	10
D	M-D	11

D	G-M	1
D	G-M	2
D	G-M	3
D	G-M	4
D	G-M	5
D	G-M	6
D	G-M	7
D	G-M	8
D	G-M	9
D	G-M	10
D	G-M	11
D	G-M	12

D	APP	1
D	APP	2
D	APP	3
D	APP	4
D	APP	5
D	APP	6
D	APP	7

MATHEMATICS BOOKLETS (Continued)

E	N-PV	1
E	N-PV	2
E	N-PV	3
E	N-PV	4
E	N-PV	5
E	N-PV	6
E	N-PV	7
E	N-PV	8
E	N-PV	9

E	A-S	1
E	A-S	2
E	A-S	3
E	A-S	4
E	A-S	5
E	A-S	6
E	A-S	7
E	A-S	8
E	A-S	9
E	A-S	10
E	A-S	11
E	A-S	12
E	A-S	13
E	A-S	14
E	A-S	15
E	A-S	16

E	M-D	1
E	M-D	2
E	M-D	3
E	M-D	4
E	M-D	5
E	M-D	6
E	M-D	7
E	M-D	8
E	M-D	9
E	M-D	10

E	G-M	1
E	G-M	2
E	G-M	3
E	G-M	4
E	G-M	5
E	G-M	6
E	G-M	7
E	G-M	8
E	G-M	9
E	G-M	10

E	APP	1
E	APP	2
E	APP	3
E	APP	4
E	APP	5
E	APP	6
E	APP	7
E	APP	8
E	APP	9
E	APP	10

MATHEMATICS BOOKLETS (Continued)

F	N-PV	1
F	N-PV	2
F	N-PV	3
F	N-PV	4
F	N-PV	5
F	N-PV	6
F	N-PV	7
F	N-PV	8

F	A-S	1
F	A-S	2
F	A-S	3
F	A-S	4
F	A-S	5
F	A-S	6
F	A-S	7
F	A-S	8

F	M-D	1
F	M-D	2
F	M-D	3
F	M-D	4
F	M-D	5
F	M-D	6
F	M-D	7
F	M-D	8
F	M-D	9
F	M-D	10
F	M-D	11
F	M-D	12
F	M-D	13

F	G-M	1
F	G-M	2
F	G-M	3
F	G-M	4
F	G-M	5
F	G-M	6
F	G-M	7
F	G-M	8
F	G-M	9
F	G-M	10
F	G-M	11
F	G-M	12

F	APP	1
F	APP	2
F	APP	3
F	APP	4
F	APP	5
F	APP	6
F	APP	7
F	APP	8
F	APP	9
F	APP	10
F	APP	11
F	APP	12
F	APP	13

MATHEMATICS BOOKLETS (Continued)

G	N-PV	1
G	N-PV	2
G	N-PV	3
G	N-PV	4
G	A-S	1
G	A-S	2
G	A-S	3
G	A-S	4
G	A-S	5
G	M-D	1
G	M-D	2
G	M-D	3
G	M-D	4
G	M-D	5
G	G-M	1
G	G-M	2
G	G-M	3
G	G-M	4
G	G-M	5
G	G-M	6
G	G-M	7
G	APP	1
G	APP	2
G	APP	3
G	APP	4
G	APP	5

H	N-PV	1
H	N-PV	2
H	N-PV	3
H	N-PV	4
H	A-S	1
H	A-S	2
H	M-D	1
H	M-D	2
H	G-M	1
H	G-M	2
H	G-M	3
H	G-M	4
H	G-M	5
H	G-M	6
H	APP	1
H	APP	2
H	APP	3

Information specific to ILA Communication Skills.

Before opening the boxes, prepare one accordian file folder (194 will be needed) for each of the following items. Then unpack and file the ILA Communication Skills material. File in the order given on the following pages, reading down, left column first. You will need four file cabinets, four drawers each. Store the surplus material.

Entrance Test – A through D
Entrance Test – E
Entrance Test – F
Entrance Test – G
Entrance Test – H

PRESCRIPTION INDICATORS – ENGLISH

Phonic Analysis (PA)

A-P.I. A PA
A-P.I. B PA
A-P.I. C PA
A-P.I. D PA

Structural Analysis (SA)

A-P.I. E SA
A-P.I. F SA
A-P.I. G SA
A-P.I. H SA

Vocabulary Development (VD)

A-P.I. E VD
A-P.I. F VD
A-P.I. G VD
A-P.I. H VD

Literal Comprehension (LC)

A-P.I. E LC
A-P.I. F LC
A-P.I. G LC
A-P.I. H LC

Interpretive Comprehension (IC)

A-P.I. E IC
A-P.I. F IC
A-P.I. G IC
A-P.I. H IC

Evaluative Comprehension (EC)

A-P.I. E EC
A-P.I. F EC
A-P.I. G EC
A-P.I. H EC

PRESCRIPTION INDICATORS – ENGLISH (Continued)

Library Skills (LS)

A-P.I. E LS
A-P.I. F LS
A-P.I. G LS
A-P.I. H LS

Organizational Skills (OS)

A-P.I. F OS
A-P.I. G OS
A-P.I. H OS

Reference Skills (RS)

A-P.I. E RS
A-P.I. F RS
A-P.I. G RS
A-P.I. H RS

B-P.I. A PA
B-P.I. B PA
B-P.I. C PA
B-P.I. D PA

B-P.I. E SA
B-P.I. F SA
B-P.I. G SA
B-P.I. H SA

B-P.I. E VD
B-P.I. F VD
B-P.I. G VD
B-P.I. H VD

B-P.I. E LC
B-P.I. F LC
B-P.I. G LC
B-P.I. H LC

B-P.I. E IC
B-P.I. F IC
B-P.I. G IC
B-P.I. H IC

B-P.I. E EC
B-P.I. F EC
B-P.I. G EC
B-P.I. H EC

B-P.I. E LS
B-P.I. F LS
B-P.I. H LS
B-P.I. H LS

B-P.I. E OS
B-P.I. G OS
B-P.I. H OS

B-P.I. E RS
B-P.I. F RS
B-P.I. G RS
B-P.I. H RS

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ENGLISH BOOKLETS

A	PA	1
A	PA	2
A	PA	3
A	PA	4
A Handwriting		

B	PA.	1
B	PA	2
B	PA	3
B	PA	4
B Handwriting		

C	PA	1
C	PA	2
C	PA	3
C	PA	4
C Handwriting		

D	PA	1
D	PA	2
D	PA	3
D	PA	4
D	PA	5
D	PA	6
D Handwriting		

E	SA	1
E	SA	2
E	SA	3

E	VD	1
E	VD	2
E	VD	3

E	LC	1
E	LC	2
E	LC	3

E	IC	1
E	IC	2
E	IC	3
E	IC	4

E	EC	1
E	EC	2

E	LS	1
E	LS	2
E	LS	3

E	RS	1
E	RS	2
E	RS	3
E	RS	4
E	RS	5

ENGLISH BOOKLETS (Continued)

F	SA	1
F	SA	2
F	SA	3
F	SA	4
F	VD	1
F	VD	2
F	LC	1
F	LC	2
F	LC	3
F	LC	4
F	IC	1
F	IC	2
F	IC	3
F	EC	1
F	EC	2
F	LS	1
F	LS	2
F	OS	1
F	OS	2
F	OS	3
F	RS	1
F	RS	2
F	RS	3
F	RS	4

G	SA	1
G	SA	2
G	SA	3
G	VD	1
G	VD	2
G	LC	1
G	LC	2
G	LC	3
G	LC	4
G	IC	1
G	IC	2
G	IC	3
G	IC	4
G	IC	5
G	EC	1
G	EC	2
G	EC	3
G	EC	4
G	LS	1
G	LS	2
G	LS	3
G	OS	1
G	OS	2
G	OS	3
G	RS	1
G	RS	2
G	RS	3

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ENGLISH BOOKLETS (Continued)

H	SA	1
H	SA	2
H	SA	3
H	VD	1
H	VD	2
H	LC	1
H	LC	2
H	LC	3
H	IC	1
H	IC	2
H	IC	3
H	IC	4
H	EC	1
H	EC	2
H	EC	3
H	LS	1
H	LS	2
H	LS	3
H	LS	4
H	OS	1
H	OS	2
H	RS	1
H	RS	2

Now the filing system is established. *Enrollment/attendance cards* are filed on your desk and the student list is posted close to the file box. A central file has been set up with a folder for each student. Each student has a place to store current work. Each student's bin and English and mathematics pocket folders have been marked with student number and name. ILA materials have been unpacked and filed. Extra ILA materials are stored in an accessible place. Other instructional materials and equipment have been unpacked and shelved. The ARC is ready to receive students. From this time on, your work will be related to the day-to-day operation of the center. Section III discusses those responsibilities.

III. WHAT ARE MY RESPONSIBILITIES?

As the center swings into full operation, three activities will absorb most of your time: (1) checking equipment and supplies, (2) updating records, and (3) marking and filing student work. Each of these three is discussed below.

Equipment and Supplies

The successful operation of an ARC depends to a great extent on the availability of instructional materials. When a student needs filmstrip, a tape recorder, or an instructional leaflet, it should be there for the student to use.

During orientation, your supervisor will give you a list of the equipment and supplies that are in the ARC. At that time, you will also be informed as to procedures that you are to use when equipment is to be sent out to be repaired, materials ordered, or shipments received. Take careful notes because that information is specific to your situation and is not included in this handbook.

Audio-visual equipment will include one or more of the following: film projectors (sound and/or silent, motion and/or still), television, tape recorders (video included), record players, and earphones. Learn to use each one so that you can help students who do not know how to operate the equipment. Don't be alarmed at the thought of running these devices; all are *very* simple to operate.

Instruments and the instructional materials displayed on the audio-visual equipment or used with it usually get a good bit of use. Check equipment and instructional materials frequently. Report any equipment that is out of order or missing. Do the same for films, tapes, records, and workbooks. Keep a dated copy of each report in the ARC files. On it, note the date when specific items were returned in workable condition or replaced.

Five forms are used in the ARC. They are: *Form I, Achievement Test Results; Form II, Basic Skill Objectives; Form III, Study Guide; Form IV, Flow Chart; and Form V, Conference Record.* At regular intervals, check the supply of each form that you have in stock. Reorder as the supply runs low.

Organize your work so that each ILA file cabinet is inspected every two weeks. Restock folders as needed. As surplus material gets low, place an order for more materials. Try not to order one item at a time. Forecast future needs and allow time for delivery. Your supervisor will help you to time orders.

Records

The aide is responsible for updating student records and for gathering certain information for ARC reports. Because information needs differ from school to school, this handbook will not discuss this aspect of your work. During orientation, your supervisor will explain what to record, when to record it, and how reports are to be prepared.

In the course of each day, material to be filed will accumulate. You will find it helpful to place three boxes at each teaching station: (1) *Central File–English*, (2) *Central File–Mathematics*, and (3) *Student Bins*. Try to file all material left in these boxes before you go home each afternoon.

Records must be kept of all materials that are loaned to students. Keep a set of 3" x 5" cards on hand. When a student borrows an item, have him/her prepare a card containing the following information: student's name, grade, the name of the teacher who gave permission to borrow the item, and the date. When the item is returned, enter the date yourself. Keep the card on file. It can be used again and again by the student.

From time to time a teacher will ask you to prepare a flow chart (*Form IV*) for certain students.

ACADEMIC RESOURCE CENTER

IV: FLOW CHART

Instructor _____ Subject _____ School Year _____

Student	Date	Date	Date	Date	Date	Date

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Steps required to prepare and maintain such a chart follow:

1. Fill in the name of the instructor who asked for the chart, the subject, and the school year.
2. In the left-hand column, list, in alphabetical order, the names of the students for whom the chart is to be kept. Each name is preceded by the student number.
3. The instructor will tell you the number of weeks (usually six) that the chart is to be maintained. Enter the starting date in the first block marked *DATE*. All entries must be made on the same day each week for the required number of weeks. Enter the other dates.
4. On each specified date, look at the appropriate student folder and enter the last item on which the student worked. Remember that you are making no judgments as to the quality of the work.
5. When the last item completed on a specific date by each student has been recorded, give the flow chart to the instructor. The instructor will return it to you in time for you to make the next entry.

Student Work

Much of your time will be spent marking papers. Keep all answer sheets (keys) readily available and clearly identified. Do not permit students to lean over your shoulder as you mark their papers. Use a red marking pencil or felt pen to identify incorrect responses. The teachers with whom you work will let you know exactly how scores are to be figured and noted.

Four boxes, in which students can deposit papers to be marked, should be set up: (1) ILA Communication Skills, (2) ILA Mathematics, (3) Mathematics, and (4) English. Students place work to be marked in the appropriate box.

Since students are usually eager to see their marks, it is a good plan to set up two more student boxes: (1) English–Marked and (2) Mathematics–Marked. When you finish marking a paper, put it in one of those two boxes. Students will pick them up from there. Any that have not been picked up should be filed in student bins. Before you go home each afternoon, try to finish marking all papers.

As you can easily see, the aide's job is crucial to the efficient operation of an ARC. There is a great deal to do, but, if you maintain a steady and reasonable pace, you should have no real problems.

the ARC: questions and answers

for the student

The ARC is at your disposal. If you learn how to manage individualized instruction, it will serve you well. This leaflet will help you to understand the ARC so that you can use it to your advantage. Here are answers to questions most frequently asked by students experiencing an ARC for the first time.

What does ARC stand for?

Academic Resource Center

What is an ARC?

An ARC is like a library that contains only English and mathematics materials. Instead of librarians, you will find English and mathematics teachers. They will help you to select materials and they will guide you as you work in each subject.

Will I attend English and mathematics classes too?

No, unless you schedule an additional English or mathematics class as an elective.

Why not?

The ARC provides individualized instruction which fulfills course requirements in English and mathematics.

You must have observed that some students learn faster than others, and that each student learns some things faster than other things. The educators who planned the ARC recognized this too and decided that learning could be made easier if (1) each student could learn just the things he or she needed to learn, and (2) each could learn at his or her own pace. In the ARC you can do just that.

If you are part of a career education program, you will be using business and community resources during the week. With individualized instruction, you do not have to worry about keeping up with a class or missing an important lecture. You know exactly what you have to do, and you know that a teacher will be there to help you when you are ready to do it. You do not have to keep up with anyone, nor do you have to wait for anyone. In fact you may not even be working on the same thing as anyone else.

How do I get started?

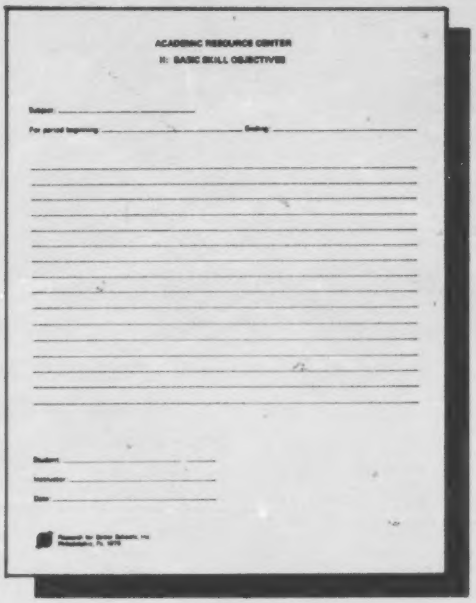
You will have an ARC mathematics teacher and an ARC English teacher. Each will help you to plan your program.

You and your teacher will want to think about the courses that you have already taken, the scores that you made on your last achievement test, the things that you

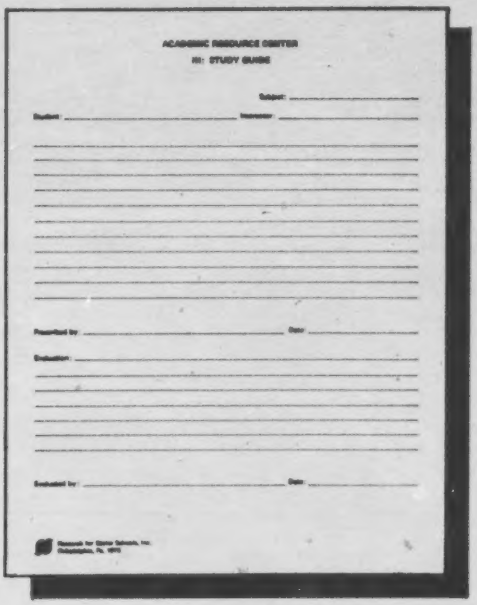
want to learn, and your career objective. After considering all of these carefully, you will be able to state what you want to accomplish in the ARC. That statement is written on a Basic Skill Objectives form (see below left). Note that your instructor must agree that your objective is reasonable and right for you.

After you have decided upon your long range goal, your teacher will help you to prepare a study guide (see below right). The study guide will tell you just what material to use and how to use it. There is also a place for your teacher to evaluate your work.

You will have a folder for English and a folder for mathematics. A study guide and all current work are kept in each.



ACADEMIC RESOURCE CENTER
II: BASIC SKILL OBJECTIVES



ACADEMIC RESOURCE CENTER
III: STUDY GUIDE

What happens when I come to something that I just don't understand?

When you work in the ARC, your teacher will be there helping each student. Although you may have to wait a few minutes, help will be available.

Will I get a mark?

Yes. You will be expected to progress toward the goal that you have set.

Will I work by myself all of the time?

No. From time to time your teacher will notice that there are several students who could profit from meeting together for a few periods. If you are one of those students, you will find a note in your folder telling you so. These group meetings may be called for any one of a number of reasons: listening to a series of lectures, viewing a film, taking part in a series of discussions, etc.

The ARC is a resource designed for your use. Define your own goals and use the ARC to gain the English and mathematics skills that you need to reach those goals.

THE STUDENT POPULATION

For whom are you planning an ARC? The answer to that question is crucial to all further planning. This leaflet offers information that may prove helpful to you as you formulate your answer. Section I examines the ARC as a component of RBS Career Education. Section II comments on the ARC as a "stand-alone" innovation.

I. THE ARC AS A COMPONENT OF RBS CAREER EDUCATION

The Instructional Mode

Individualized instruction, instruction keyed to the specific needs of each student, is the mode employed in the ARC. It is admirably suited for use in the RBS program since:

1. Program students use business and community resource sites one day each week. When program and non-program students are scheduled into regular classes together, it is extremely difficult to maintain continuity in the instructional program for the EBCE students. Individualized instruction solves this problem.
2. Individualized instruction asks only that the student locate himself/herself honestly on a knowledge or skill continuum, and then apply himself/herself conscientiously to moving as far along the continuum as possible. The student need not be concerned with a neighbor's starting point or learning pace. He/she can learn what he/she needs to know without damaging his/her self-concept.

Subjects Taught

To individualize all instruction in a comprehensive high school would be a task of such proportions that it could not have been accomplished in the developmental time available to RBS. Therefore, delimitation was necessary. It was decided to individualize the two key subjects, English and mathematics.

A moderate level of competence in English and mathematics is prerequisite for career success in all but a very few jobs. Program students usually will represent the range of achievement found in most high schools. That range finds seriously handicapped individuals at one extreme, and those who seek advanced knowledge as preparation for a career in one of the professions at the other. Individualized instruction in the two key subjects of English and mathematics not only provides for meeting the wide range of needs of the students in the program but also alleviates the continuity problem that exists in an experience-based career education program. Each student can be assured of sound, consistent, and appropriate education in the two very important major subjects.

The Purpose of the Resource Center

The individual student's readiness for learning a particular segment of English or mathematics does not necessarily correspond to the specific chunk of knowledge designed in the curriculum as appropriate for his/her grade. As mentioned above, students can be expected to run the gamut from the reality-bound with minimal skills to those whose highly developed skills and personal interests allow them to deal comfortably with abstractions. To be responsive to the individual student, the teacher must have at hand the variety of instructional material and equipment suitable for such a broad spectrum of achievement and interest. Diversity of instructional material and equipment can be achieved most economically and material used most efficiently if it is gathered together in one centrally located work area.

The Student Body

A general description of the program students should be constructed as soon as possible. Administrative planners will decide the number of students, the grade levels from which they will be selected, the achievement range that will be acceptable, whether students will volunteer or be assigned, etc. Once these general decisions have been made, they are recorded on a PLANNING INFORMATION form.

ACADEMIC RESOURCE CENTER

PLANNING INFORMATION

STUDENT BODY	DISTRIBUTION ACCORDING TO ACADEMIC ACHIEVEMENT			SEX		OTHER	COURSES OFFERED		
	Below Expected Level	At Expected Level	Above Expected Level	M	F		English/Cr.*	Mathematics/Cr.*	Other/Cr.*
Grade 9									
Grade 10									
Grade 11									
Grade 12									

*Cr. stands for Credits to be awarded for completion of the course

Copies of the completed form are then distributed to all planning staff. The student population described on the form becomes the focal point for the thinking of all planners.

One of these planning groups will be a committee responsible for the identification and selection of students for the program. One member of this student identification committee should be responsible for collecting the information needed by the ARC teachers. As each student is identified, an ARC Enrollment Card should be completed. A copy of Side 1 of the Enrollment Card appears below. Side 2 is not shown since it is not for use at this time.

ARC ENROLLMENT

Student _____ Sex _____ Date of Birth _____

Date of Enrollment _____ Grade at Enrollment _____

Career Objective, if known _____

SECONDARY ENGLISH COURSES COMPLETED

Course Title	School Year	Mark

SECONDARY MATHEMATICS COURSES COMPLETED

Course Title	School Year	Mark

(NOTE: These cards can be obtained from RBS in packages of 100)

Completed Enrollment cards are given to the ARC teachers two weeks before the opening of the ARC.

Scheduling

Student schedules are constructed well in advance of the opening of school. Each program component has scheduling requirements peculiar to it. Since this leaflet is concerned only with the ARC, the scheduling restrictions of the ARC are the only ones that appear below.

1. The student/teacher ratio must not exceed 20 to 1 during any period.
2. The relationships between the subject for which the student is scheduled and the competencies of the ARC teachers must be noted. If this factor is ignored, it is conceivable that 60 students could be scheduled into one English period with only two ARC English teachers.

II. THE ARC AS A SEPARATE ENTITY

In Section II, the ARC as a "stand-alone" innovation is contrasted with the ARC as a component of RBS Career Education. The assumption is made that the reader is familiar with Part I of this leaflet.

When the specific educational need is not career education, the ARC can be implemented apart from the RBS program. Two examples cited below illustrate situations in which an ARC would be helpful:

1. A group of gifted students are to be given special instruction in art and music. Such instruction requires students to operate on irregular, variable schedules, much as do RBS program students.
2. A previously isolated group of slow learners are to be merged with students who usually maintain an average or above average learning pace. An ARC is a reasonable response to this need. It will permit each student to learn at his/her own pace. None will be unduly pressured to speed up and none will be held back.

Whenever individualized education is perceived to be the correct response to a problem, educators may want to implement an ARC. The implementation procedures are similar to those described in Part I.

ARC Basic Information Series: Leaflet II

SELECTING A SITE

SELECTING A SITE

As soon as a general description of the student population has been constructed and recorded on a *Planning Information* form, the area to be converted to ARC use can be identified. This leaflet is designed to call attention to some aspects of site selection that might otherwise be overlooked.

The following sections discuss: (1) factors that influence the amount of floor space needed, (2) renovation needs, and (3) adjustments that can be made. Site selection experiences of the pilot implementation are cited in each section.

I. ESTIMATING THE FLOOR SPACE NEEDED

The total amount of floor space must take into consideration both the maximum number of students scheduled into the ARC at any given moment and the total ARC enrollment. The first factor, the maximum number of students scheduled into the ARC at any one moment, permits an estimate of the number of square feet required to seat students comfortably. As you make that estimate, consider the kind of seating that will be used. Six or eight students grouped around a library-type table take a bit less floor space than the same number of students seated at private desks. If study carrels are used extensively, the estimate will probably need further adjustment. About one hundred students in an ARC at one time seems to be manageable. Should your plan call for many more than that, you will probably want to open two centers.

The total ARC enrollment is the second factor that influences the floor space requirements. As total enrollment increases, so do the number of teacher and aide desks, student bins, file cabinets, book cases, and storage cabinets.

The pilot site was planned for a total enrollment of 300 students with no more than 100 working in the ARC at any one time. Approximately 2800 square feet of floor space proved to be quite adequate.

Before focusing on a specific site, it is a good idea to tour the entire school plant to take a fresh look at how space is used. An objective view of this kind may bring to light different ways of using certain areas. Reassigning various areas may not only open up space for an ARC but may be advantageous to other users, too. The ARC at the pilot site had been a little used cafeteria before its conversion to a learning center.

II. RENOVATION NEEDS

It is quite possible that the site finally selected will not previously have been used as an instructional area. If this is the case, some renovation may be needed. Below are listed some things that you may want to check as you decide whether or not renovations are in order.

1. Is there adequate lighting for an instructional area? Is the total area equally well-lighted or are there dark spots? This aspect of the center will need special attention if carrels are to be used.
2. Is the number of electrical outlets adequate for the number and kinds of audio-visual equipment that will be used in the center? If three prong plugs are required, will the outlets take them? Are outlets placed so as to permit flexibility in room arrangement?
3. Does sound bounce around the area so that it is magnified? Are acoustic tiles needed? Will carpeting be needed to muffle sound?
4. What activities take place in rooms adjacent to the ARC site? If the immediate area is unusually noisy, the doors of the ARC will be kept closed most of the time. If this is so, will the ventilation and temperature control mechanisms keep the area comfortable?
5. Does anything have to be done to make the area aesthetically pleasing? Carpeting will probably be considered for this purpose as well as for sound control. Will the area need paint, etc.?

Renovations must be specified and time and money expenditures estimated as soon as possible so that implementation budgets can reflect all decisions.

It may be interesting to know the renovations made at the pilot site. The area was carpeted and study carrels were installed. A row of electrical outlets, previously used for steam trays, was adequate for audio-visual equipment.

III. ADJUSTMENTS

What does a school do when a large, open area simply is not available for use as an ARC? Adjustments can be made, provided they do not violate the basic concept of individualized instruction. This section indicates some possible adjustments.

1. If two areas can be found, each capable of housing half of the maximum number of students scheduled into the ARC at any one time, make one area *ARC-English* and the other *ARC-Mathematics.* In this setting, some of the advantages of team teaching can be preserved and individualization will not be damaged.
2. If the available space is a bit too small, use a room adjacent to the ARC for teachers' desks, their personal files, and storage of surplus instructional material.
3. Use a room adjacent to the ARC as the audio-visual area. Store surplus instructional materials in that same room.
4. If three rooms opening into one another are available, and if all three together afford sufficient floor space, designate them as the *ARC Suite.* Use one room for discussion and group meetings, another for students who need a very quiet working area, and the third for students using instructional equipment.
5. Again, using several rooms opening one into the other, designate one for use by students using ILA, another for mathematics, and the third for English.

The alternate organization plans presented above probably have suggested others to you. Weigh each carefully in order to get a clear view of the total impact of each one before arriving at a final decision.

THE PROFESSIONAL STAFF

This leaflet is concerned with selecting the professional staff and orienting that staff to the ARC. Part I discusses the selection of the staff. Part II lists topics for orientation sessions and suggests a logical sequence for the presentation of those topics. Part II assumes that an RBS staff member will be present at teacher orientation to act as discussion leader.

I. SELECTING THE PROFESSIONAL STAFF

Lines of responsibility should be specified before teachers are appointed. It is recommended that department chairpersons have major responsibility for approving course content, if that has been the usual procedure. One individual should be given the responsibility for overseeing the day-to-day operation of the ARC. That person may be a school administrator or, if there are four or more ARC teachers, it may be desirable to name one of them as head teacher.

In the ARC, the individual teacher is responsible for guiding approximately 120 students. This may seem to be a lighter load than that carried by many English and mathematics teachers, but, since individual learning programs must be constructed and monitored for each student, the number should not be increased.

The ideal professional ARC staff is made up of exceptionally fine teachers who are knowledgeable about, and philosophically in tune with, individualized instruction guided by performance objectives. Since individualized instruction is the preferred mode in the ARC, the effective teacher is not only well-versed in an area of specialization, but also skilled in diagnosing and prescribing for students experiencing learning difficulties. Each teacher is flexible enough to adjust to change and mature enough to realize that a lot of hard work is needed to make any educational innovation succeed.

If ARC teachers are to be drawn from existing staff, procedures for making such appointments probably are specified. Therefore, that process will not be discussed here.

Because it is likely that the most exhaustive search will produce, at best, only a close approximation of the ideal ARC teacher, in-service education must be provided for teachers who shift from traditional classrooms to the ARC. Diagnosing and prescribing for individual learning problems will probably be the skills most in need of reinforcement and refinement. Before a teacher agrees to work in the ARC, he/she should be made aware of his/her obligation to acquire any needed skills not already in his/her repertoire. At the same time, the teacher should be assured of administrative support as he/she works to gain or improve teaching skills.

II. STAFF ORIENTATION

After the selection of teachers, orientation sessions for staff should be scheduled and conducted as soon as possible. A series of five four-hour sessions should serve to provide background information, clarify roles, define lines of communication, and familiarize teachers with the operational procedures of the ARC.

Materials Needed for Orientation

Each participant in teacher orientation will need a copy of:

1. *Implementing the ARC: Suggestions for the Teacher*
2. *Handbook for Aides*
3. *The ARC: Questions and Answers for the Student*
4. *ILA Manual*

For every five participants, one *Basic Information Series* will also be needed.

The Agenda for each of the five orientation sessions follows.

DAY ONE

I. Overview of RBS Career Education

II. ARC Implementation Materials

BREAK

III. Program Components to Be Implemented

IV. ARC Planning Information

The purpose of this first session is to establish a common frame of reference for all participants. The theoretical model, together with its implementation materials, is presented. The project implementation is explained, compared to the theoretical model, and discussed. A description of the incoming student body (a completed Planning Information form) is given to each participant.

ACADEMIC RESOURCE CENTER
PLANNING INFORMATION

STUDENT BODY	DISTRIBUTION ACCORDING TO ACADEMIC ACHIEVEMENT			SEX		OTHER	COURSES OFFERED		
	Below Expected Level	At Expected Level	Above Expected Level	M	F		English/Cr *	Mathematics/Cr *	Other/Cr *
Grade 9									
Grade 10									
Grade 11									
Grade 12									

*Cr stands for Credits to be awarded for completion of the course

DAY TWO

From Day Two on, presentations and discussions center on the ARC, rather than focusing on the overall program implementation. Day Two deals with the specifics of individualized instruction: why it is the preferred instructional mode; how the teacher sequences learning activities; the segments of each discipline; how the teacher uses standardized test scores and student histories to select an appropriate segment of each discipline for the student, etc. Management is also discussed: who is responsible to whom for what; what records are kept and where are they stored.

I. Individualized Instruction

- Philosophy
- Learning Sequence
- Teaching Style

BREAK

II. Managing Individualized Instruction

- Staff Relationships
- Student/Staff Interaction
- Maintaining Records

DAY THREE

The third session is devoted to the specifics of ILA: what it is and how it works. This whole session concerns the student who is functioning at 8.9 grade equivalent or less in mathematics and/or reading. The group should arrive at some tentative decisions about reporting student progress.

I. ILA

- ILA Mathematics
- ILA Communication Skills

BREAK

II. Reporting Student Progress

DAY FOUR

Day Four deals with the very practical matters of what goes where in the ARC. (See *Leaflet VI: Setting up the ARC.*) If possible, this session should take place in the area that will become the ARC. Some role-playing serves to help participants visualize themselves functioning in the Center. Participants should establish the specific operational procedures for their ARC.

I. Setting up the ARC

- Arranging the Instructional Materials (See the *Handbook for Aides* and *Leaflet VI: Setting up the ARC*)
  - ILA
  - Other
  - Audio-Visual
- Locating Teaching and Aide Stations

BREAK

II. Operational Procedures

- Attendance
- Aide Responsibilities
- Visitors

DAY FIVE

This last session is designed to consolidate information gained and to clarify any misunderstandings. It also defines the content of aide and student orientations. Specific responsibilities are assigned for each of those orientations. It is hoped that the discussion of implementation assessment will help teachers to focus on the goal of a smoothly functioning, effective ARC.

I. General Discussion

BREAK

II. Where Do We Go From Here?

- Aide Orientation (See *Leaflet V: The Aide*)
- Student Orientation (See *Leaflet VII: Orienting Students*)
- Implementation Assessment (See *Leaflet X: Assessing the Implementation*)

The RBS representative sets the date for the next consultant visit.

ARC Basic Information Series: Leaflet IV

EQUIPPING THE ARC AND ESTABLISHING THE INFORMATION FLOW

The first section describes the materials and equipment ordered for use at the pilot site. It then calls attention to certain features of the projected implementation that must be considered as the pilot site equipment and materials orders are adjusted to the specific needs of each implementation.

The second section discusses individualized instruction and the information flow that facilitates individualized instruction.

Annotated bibliographies of the English and mathematics materials ordered for the ARC appear in the Appendix.

I. EQUIPPING THE ARC

The pilot site was planned for 300 students in grades nine through twelve. The equipment and materials orders for the ARC for these students are presented in three segments: (1) Essential Equipment, (2) Instructional Material: English, and (3) Instructional Material: Mathematics.

Essential Equipment

The pilot-site budget allocations reported here omit costs for basic furnishings since staff and student desks, chairs, book shelves, and study carrels were available. Equipment essential for housing instructional material or that required for instructional purposes is listed in Table I.

TABLE I

ESSENTIAL EQUIPMENT

Unit	Cost per Unit	Number of Units	Total
Four drawer file cabinets: 7 for ILA Mathematics, 4 for ILA Communication Skills, 3 for general use	$100.00	14	$1,400.00
Metal bookcases, each converted to contain 32 student storage units	55.00	10	550.00
Filmstrip viewers for individual viewing	24.50	10	245.00
Tape recorders, cassette type, each with ear phones	50.00	15	750.00
Storage cabinets for audio-visual materials	75.00	2	150.00
			$3,095.00

Instructional Materials: English

The budget for English instructional materials appears in Table II. It reflects the fact that about half of the students in the pilot site needed basic reading instruction. As with the general equipment budget, it must not be assumed that the materials listed in the bibliography in the Appendix were the only instructional materials used. A well-stocked, functioning library was available in the high school, and many materials were allocated to the Center from the English department.

TABLE II

INSTRUCTIONAL MATERIALS: ENGLISH

Unit	Number of Units	Cost
ILA Communication Skills	3 (for 150 students)	$4,500.00
Reading and Composition	300	378.00
Individualized Literature	400 (paperbacks)	1,120.00
Leaflets: Skills for Adult Life		102.00
RFU: Reading for Understanding Kit		90.30
Programmed Grammar	60 (3 levels)	198.00
World Book Encyclopedia	1	148.50
Duo-tang folders for student use, accordion folders for storage of ILA material, other clerical supplies.		1,500.00
		$8,036.80

Instructional Materials: Mathematics

The budget for mathematics materials appears in Table III. It reflects the fact that about half of the students in the pilot site needed instruction in basic mathematics. Basic mathematics is used here to mean that mathematics usually taught in grades one through eight.

The ARC pilot site was part of a well-equipped high school, the resources of which were fully used by the ARC students. Therefore, it must be understood that the materials listed in the bibliography in the Appendix were not the only mathematics materials used by ARC students.

TABLE III

INSTRUCTIONAL MATERIALS: MATHEMATICS

Unit	Number of Units	Cost
ILA Mathematics	3 (for 150 students)	$8,000.00
Computational Skills Kit	1	130.05
Algebra Skills Kit	1	123.72
Holt Geometry	50	432.00
Holt Algebra I	50	414.00
Holt Algebra II	50	432.00
Algebra I Programmed	20	302.50
Algebra II Programmed	20	320.00
Plane Geometry Programmed	20	240.00
Games (3)		25.40
Math Applications Kit	1	80.65
Duo-tang folders for student use, accordian folders for storage of ILA material, other clerical supplies		1,500.00
		$12,000.32

Adjusting the Pilot Site Orders to the Needs of the Projected Implementation

The materials and equipment ordered for use in the pilot site will have to be adjusted to reflect certain features of the projected implementation. Some features of a projected implementation that affect materials and equipment orders are listed below on the left. An indication of the adjustments required appears to the right of each feature.

Feature of the Projected Implementation	Adjustment Required
Size of the student population.	Increase or decrease in proportion to the difference in the numbers of students in the pilot and projected implementations.
Scheduling pattern: an effort was made in the pilot site to have no more than 50 English and 50 mathematics students in the ARC at any one time.	If a greater number of students are expected to work in a single subject at any one time, increase materials in that subject proportionately; if fewer, decrease.
Will there be a comprehensive or restricted achievement range?	If achievement is restricted to upper or lower ranges, delete materials designed for use by students who will not be included. Increase materials suited to the achievement range that will be represented.
Special talents and interests of ARC instructors.	If an instructor is particularly interested in cinema, woodworking, poetry, etc., order instructional materials that will permit use of this special interest and talent to motivate certain students and to enrich the curriculum for others.
Current inventory of English, mathematics, and audio-visual materials.	Much suitable material is usually on inventory and can be assigned to the ARC. Reduce orders to avoid duplication.

II. ESTABLISHING THE INFORMATION FLOW

As the individualized instructional mode is implemented in the ARC, each student, guided by an instructor, moves through the sequence outlined below.

1. A standardized achievement test is administered to each student. At the pilot site, the *Comprehensive Test of Basic Skills* was used.
2. A segment of English or mathematics in harmony with the student's achievement level is designated for study and specific performance objectives are established.
3. Student performance for each objective specified in Step 2 is assessed.
4. In light of student performance, a prescription for learning is devised.
5. Periodically, throughout the learning process, student progress is evaluated and the prescription for learning adjusted as needed.
6. Again, student performance for each objective specified in Step 2 is assessed. Assessment is comparable to that made in Step 3.
7. If mastery is demonstrated, Steps 2 through 6 are repeated for another segment of English or mathematics. If mastery is not demonstrated, Steps 4 through 6 are repeated.

In order to keep a student moving through the learning sequence just outlined, information about progress must be regularly recorded. It is important that the records be accurate, current, and available because each new learning prescription is based on the student's past performance. An enrollment/attendance card and five forms, if conscientiously maintained, provide an adequate information base.

There are four locations for storing information:

1. *A file box on the aide's desk.* This box holds 5" x 8" Enrollment/Attendance cards. These cards are kept in alphabetical order according to last names without regard to grade, teacher, or any other variable.
2. *A central file maintained by an aide.* A folder for every ARC student appears in this file. Folders are arranged in alphabetical order according to last name, without regard to grade, teacher, or any other variable.
3. *A file maintained by each instructor.* In this file, the teacher keeps a folder for each student assigned to him.
4. *A folder maintained by the student.* This file contains materials relating to the student's current academic work.

The Enrollment/Attendance Card

Side 1 is completed upon student recruitment. Information is added to it at the end of each marking period that the student is in the ARC. Side 2 is maintained by the aide at the close of every marking period.

ARC ENROLLMENT

Student _____ Sex _____ Date of Birth _____

Date of Enrollment _____ Grade at Enrollment _____

Career Objective, if known _____

SECONDARY ENGLISH COURSES COMPLETED

Course Title	School Year	Mark

SECONDARY MATHEMATICS COURSES COMPLETED

Course Title	School Year	Mark

ARC ATTENDANCE

File No. _____

School Year	Subject	REPORT PERIODS 1 *Poss.	1 *Act.	2 *Poss.	2 *Act.	3 *Poss.	3 *Act.	4 *Poss.	4 *Act.	5 *Poss.	5 *Act.	6 *Poss.	6 *Act.

*Poss - Possible no. of periods student could have attended

*Act - Actual no. of periods student attended

Complete following if student is removed from ARC rolls

Effective Date _____

Reason _____

Form I: Achievement Test Results

Form I contains routine identification data and provides space for recording achievement test scores. This form is kept in the *Central File*.

ACADEMIC RESOURCE CENTER

I: ACHIEVEMENT TEST RESULTS

Student _____ Date of Birth _____
Last Name First Name

Date of Enrollment _____ Grade at Enrollment _____

STANDARDIZED ACHIEVEMENT TESTS

Title and Form of Test	Date Administered	Results

Research for Better Schools, Inc.
Philadelphia, Pa. 19145

Form II: Basic Skill Objectives

This form records the long range objectives identified by teacher and student as worthy of student effort. It is kept in the *instructor's file*. When the student leaves the ARC, it is *transferred to the Central File*.

ACADEMIC RESOURCE CENTER
II: BASIC SKILL OBJECTIVES

Subject _____

For period beginning _____ Ending _____

Student _____

Instructor _____

Date _____

Research for Better Schools, Inc.
Philadelphia, Pa. 1975

Form III: Study Guide

The student uses this study guide to direct him/her in day-to-day work. The guide is kept in the *student's folder* until the tasks outlined on it have been completed and evaluated. It is then *transferred to the Central File.*

ACADEMIC RESOURCE CENTER
III: STUDY GUIDE

Subject _____

Student _____ Instructor _____

Prescribed by _____ Date _____

Evaluation _____

Evaluated by _____ Date _____

Research for Better Schools, Inc.
Philadelphia, Pa. 1975

Form IV: Flow Chart

This form is maintained by the aide at the request of the teacher. Directions for keeping it are found in the *Handbook for Aides.* It is discarded after it has been used.

ACADEMIC RESOURCE CENTER

IV: FLOW CHART

Instructor _____ Subject _____ School Year _____

Student	Date	Date	Date	Date	Date

Research for Better Schools, Inc.
Philadelphia, Pa. 1975

Form V: Conference Record

This form is kept in the *instructor's file*. When the student leaves the ARC, it is *transferred to the Central File*.

ACADEMIC RESOURCE CENTER

V: CONFERENCE RECORD

Student _____ Instructor _____

Date _____ Conference called by _____

Purpose _____

Course of action agreed upon _____

Research for Better Schools, Inc.
Philadelphia, Pa. 1975

ANNOTATED BIBLIOGRAPHY OF ENGLISH INSTRUCTIONAL MATERIALS ORDERED FOR THE ACADEMIC RESOURCE CENTER AT THE PILOT SITE, 1974-1975.

Subject: English – Grammar

Grade Level: 2200: grades 7 – 8
2600: grades 9 – 10
3200: grades 11 – 12

Author: Joseph C. Blumenthal

Title: Programmed Grammar and Usage

Publisher: Harcourt Brace Jovanovich, 757 Third Avenue, New York, NY 10017

Date of Publication: 1973

Content Summary: Programmed course in traditional grammar and usage.

Price per Unit as of 1974: $3.30

Number Ordered: 20 at each level

Special Requirements for Use: None. Material is suited to individualized instruction.

Dominant Teaching Strategy: Programmed instruction is used. One frame presents an item requiring a response. Student responds and then moves to next frame where he/she is given the correct response to the previous item and the next item for which a response is required. Process continues until a specific unit is completed. Student then takes a test on the unit.

Style of Presentation: Frames are sequenced so that each succeeding frame appears on a separate page.

Subject: English

Grade Level: 9 – 12

Author:

Title: Be Informed

Publisher: New Readers Press, Box 131, Syracuse, NY 13210

Date of Publication: 1971

Content Summary: Seventeen informative and interesting articles, each printed in a leaflet. Titles follow:

Personal Credit	Renting a House	Mental Retardation	Money
Buying an Auto	Reading Your Newspaper	Marriage	Drugs
Owning an Auto	Finding a Job	Using Measurements	
Buying a House	Taxes	Wise Buying	
Personal Insurance	Banking	Using Your Library	

Price per Unit as of 1974: $.30 Number Ordered: 20 of each title

Special Requirements for Use: None

Dominant Teaching Strategy: These leaflets serve two purposes: (1) they permit the student to exercise newly acquired word recognition skills in the reading of short, interesting, and informative articles, and (2) they increase knowledge of skills required for successful living in adult society.

Style of Presentation: Each article is presented in leaflet form. The leaflets are grouped according to units: Family Living, Money Management, and Practical Math. Each leaflet contains four to eight pages. Students first read a discussion leaflet and then complete a review. The review contains a series of exercises stressing comprehension, writing, word study, and grammar.

Subject: English – Reading

Grade Level: 10

Author:

Title: ILA (Individualized Learning for Adults)

Publisher: Research for Better Schools, Inc., 1700 Market Street, Philadelphia, PA 19103

Date of Publication: 1972

Content Summary: One hundred and twenty-nine units are grouped along a continuum in the areas of: Phonic Analysis, Handwriting, Structural Analysis, Vocabulary Development, Literal Comprehension, Interpretive Comprehension, Evaluative Comprehension, Library Skills, Organizational Skills, and Reference Skills.

Price per Unit as of 1974: $1,323.66 (for 50 students)

Number Ordered: 3 units

Special Requirements for Use: Individual student cassette players will be needed.

Dominant Teaching Strategy: Five *Entrance Tests* sample the learner's performance in each level of the continuum. Seventy *Perscription Indicators* plot the learner's route through the instructional materials. One hundred and twenty-nine booklets, each with a performance objective, comprise the instructional component. In each booklet two monitoring devices–*Skill Test A* and *Skill Test B* offer evidence for making instructional decisions. Forty-two cassettes give audio support as needed.

Style of Presentation: Clear type and audio. Directions to the student are clear enough for individual use with periodic consultations with the teacher.

Subject: English – Reading

Grade Level: 10

Author: Ann Fears Crawford and Norman Schacter

Title: Perfecting Reading and Writing Skills – Experience 1

Publisher: Steck-Vaughn Co., P. O. Box 2028, Vaughn Building, Austin, TX 78767

Date of Publication: 1972

Content Summary: Reading selections grouped in five units: (1) Life with a Light Touch, (2) The Marvels of Nature, (3) The Wonders of Science and Invention, (4) The Call of Adventure, and (5) The Spirit that Serves Mankind. Selections in each unit have literary value.

Price per Unit as of 1974: $1.26 Number Ordered: 100

Special Requirements for Use: None

Dominant Teaching Strategy: Presents models of good writing. Exercises to develop vocabulary and critical reading skills follow each selection. The student then has an opportunity to practice writing himself. Topics are suggested.

Style of Presentation: Clear type and attractive black, white, and blue illustrations. Directions to the student are clear enough for the student to use this book individually with periodic consultations with the teacher.

Subject: English – Reading and Composition
Grade Level: 11

Author: Ann Fears Crawford and Norman Schacter

Title: Perfecting Reading and Writing Skills – Experience 2

Publisher: Steck-Vaughn Co., P. O. Box 2028, Vaughn Building, Austin, TX 78767

Date of Publication: 1972

Content Summary: Selections of literary worth are grouped around five themes: (1) The Nostalgia of Bygone Days, (2) A Glimpse of Youth and the Future, (3) The Thrills and Excitement of the Sports World, (4) The Power of Persuasion, and (5) Milestones in the Making of Democracy.

Price per Unit as of 1974: $1.26 Number Ordered: 100

Special Requirements for Use:

See Experience 1 (Page 25 of this leaflet)

Dominant Teaching Strategy:

See Experience 1

Style of Presentation:

See Experience 1

Subject: English – Reading and Composition
Grade Level: 12

Author: Ann Fears Crawford and Norman Schacter

Title: Perfecting Reading and Writing Skills – Experience 3

Publisher: Steck-Vaughn Co., P. O. Box 2028, Vaughn Building, Austin, TX 78767

Date of Publication: 1972

Content Summary: Selections of literary worth are grouped around five themes: (1) The External Lure of the Sea, (2) The Many Facets of Life in America, (3) Experiencing the World of Books and Popular Art, (4) A Glimpse of Society and Its Institutions, and (5) The World of the Inner Life.

Price per Unit as of 1974: $1.26 Number Ordered: 100

Special Requirements for Use:

See Experience 1 (Page 25 of this leaflet)

Dominant Teaching Strategy:

See Experience 1

Style of Presentation:

See Experience 1

Subject: English – Reading

Grade Level: 3 – College

Author: Thelma G. Thurstone

Title: General RFU: Reading for Understanding

Publisher: Science Research Associates, 259 East Erie Street, Chicago, IL 60611

Date of Publication: 1959

Content Summary: Sets of cards, color coded as to level, are filed in a box. Each card contains a short reading followed by exercises designed to develop the student's ability to draw logical conclusions. There are 400 such cards, 40 answer key booklets, a placement test, student record book, and teacher's handbook in each box.

Price per Unit as of 1974: $49.50
Placement Tests (Pkg. of 40) $6.80

Number Ordered: 1 box
6 packages of tests

Special Requirements for Use: None

Dominant Teaching Strategy: Student achievement level is determined by placement test. Student then proceeds from that level upward. He reads selections, answers comprehension and evaluation questions, checks answers, and keeps records of scores.

Style of Presentation: The cards are coded by color and symbol. Program is largely student operated.

Subject: English

Grade Level: General

Author:

Title: The World Book Encyclopedia

Publisher: Field Enterprises Educational Corp., Merchandise Mart Plaza, Chicago, IL 60654

Date of Publication: 1972

Content Summary:

Price per Unit as of 1974: $148.50 Number Ordered: 1

Special Requirements for Use:

Dominant Teaching Strategy:

Style of Presentation:

Subject: English – Literature

Grade Level: 7 – 12

Author: Robert A. Bennett

Title: Individualized Literature Program

Publisher: American Book Co., 450 W. 33rd Street, New York, NY 10001

Date of Publication: 1972

Content Summary: A selection of 200 paperbacks grouped in the following levels AA, A, BB, B, CC, C, DD, D. The easiest level is AA, the most difficult D. There are 25 titles for each level. Classical and modern literature is represented.

Price per Unit as of 1974: $140 per level Number Ordered: 1 of each level

Special Requirements for Use: Exercises in each set can be duplicated using mimeograph or xerox.

Dominant Teaching Strategy: Student reads selected book using the student guide provided and then takes a test (also provided).

Style of Presentation: Student package supplies background material, chapter by chapter guide, and tests. A summary of each book is provided for the teacher. Critical commentary and extended information are also provided.

ANNOTATED BIBLIOGRAPHY OF MATHEMATICS INSTRUCTIONAL MATERIALS ORDERED FOR THE ACADEMIC RESOURCE CENTER AT THE PILOT SITE, 1974-1975.

Subject: General Math

Grade Level:

Author: Charles Proctor and Patricia Johnson

Title: Computational Skills Development Kit

Publisher: Science Research Associates, Inc., 259 East Erie Street, Chicago, IL 60611

Date of Publication: 1965

Content Summary: Addition, subtraction, multiplication, and division of whole numbers, fractions, decimals, and percents.

Price per Unit as of 1974: $83.95
Student Record Book: $.59
Diagnostic Tests: $10.70 for one set

Number Ordered: 1 kit
60 Student Record Books
1 set of tests

Special Requirements for Use: Once the teacher diagnoses the problem areas, the students can use the kit to help themselves master the skills in which they have the greatest difficulty.

Dominant Teaching Strategy: The kit can be used to supplement other general mathematics material. Its purpose is solely to provide practice in the fundamental computational skills.

Style of Presentation:

1. Survey Test
   This consists of Part I (Computation of Whole Numbers and Fractions) and Part II (Computation with Decimal Numerals and Percents). The purpose of the Survey Test is to determine the individual's weaknesses.

Continued .....

Style of Presentation (Continued)

2. Diagnostic Tests
   There are 12 Diagnostic Tests. For each problem students get wrong there is a corresponding exercise card.
3. Reference Cards
   There are 16 reference cards, one for each skill area. They are used only to assist a student who may have forgotten a basic computation.
4. Exercise Cards
   There is an exercise card for each problem on the diagnostic tests. For each problem a student gets wrong on the diagnostic test, he/she must complete the corresponding exercise card.
5. Progress Tests
   There are 16 progress tests, one for each skill area. These are used to determine whether or not the student has overcome his/her weaknesses.
6. Student Record
   This is where the students record the data from their Survey Tests, Diagnostic Tests, and Progress Tests. They also keep records of the exercises they have completed.

Subject: General Math

Grade Level: 1 - 9

Author:

Title: ILA (Individualized Learning for Adults)

Publisher: Research for Better Schools, Inc., 1700 Market Street, Philadelphia, PA 19103

Date of Publication: 1972

Content Summary: Units are grouped along a mathematics continuum in the areas of Numeration-Place Value, Addition-Subtraction, Multiplication-Division, Geometry-Measurement, and Applications.

Price per Unit as of 1974: $2,877.44 Number Ordered: 3 units

Special Requirements for Use: None

Dominant Teaching Strategy: Five *Entrance Tests* sample the learner's performance in each area of the hierarchy. Each test contains items ranging in difficulty through levels of progress. Seventy-two *Perscription Indicators* plot the learner's mastery of specific behavior objectives. Two hundred and eighty-two *booklets*, each with a behavioral objective, comprise the instructional component. Each booklet contains two evaluative instruments, *Skill Test A* and *Skill Test B*, which serve to monitor the learner's progress through the instructional booklet.

Style of Presentation: Clear type. Directions to the student are clear enough for individual use with periodic consultations with the teacher.

Subject: General Math

Grade Level:

Author: Allen C. Friebel and Carolyn Kay Ginrich

Title: Math Applications Kit

Publisher: Science Research Associates, Inc., 259 East Erie Avenue, Chicago, IL 60611

Date of Publication: 1971

Content Summary:

1. Fractions
2. Decimals
3. Percents
4. Plane Shapes
5. Solid Shapes
6. Length
7. Area
8. Volume
9. Scale Drawing
10. Statistics
11. Probability
12. Graphing
13. Functions

Price per Unit as of 1974: $62.95
Student Handbook: $.59

Number Ordered: 1 kit
30 student handbooks

Special Requirements for Use: This kit is excellent for individualized instruction as well as for students working in groups. Students need room in which to work out some of the activities. Many materials should be collected to make the activities more interesting; e.g., metersticks, yardsticks, stopwatches, graph paper, etc.

Dominant Teaching Strategy: This kit can be used to supplement a book or other material. It encourages the student to use concrete materials rather than just the abstract. This assists the students in understanding mathematics. There are no set answers but rather students should be evaluated by how well they have solved and analyzed the problems.

Style of Presentation:

1. Student Handbook
   This contains an introduction to the kit, as well as starter problems to determine if the student is ready to use the kit. It also contains a chart for the student to record the work completed.

Continued .....

Style of Presentation (Continued)

2. Activity Cards
   These give questions to arouse interest and list the materials needed for each activity.
3. Reference Cards
   These cards contain information about the materials needed for certain cards.
4. Teachers Handbook
   This explains how to use the kit.
5. Almanac
   This is provided for the student's use.

Subject: Mathematics – Game

Grade Level: Ages 8 to Adult

Author:

Title: Heads Up

Publisher: Creative Publications, Inc., P. O. Box 10328, Palo Alto, CA 94303

Date of Publication: 1974

Content Summary:

Price per Unit as of 1974: $4.95 Number Ordered: 2

Special Requirements for Use: Any number can play either as individuals or partners. The game can be used to sharpen mental arithmetic.

Dominant Teaching Strategy: The game helps increase students speed in working with the four basic operations of mathematics.

Style of Presentation: The game consists of a plastic playing board with 14 cubes, a timer, and a cup. The player tosses the cubes with numbers and must try to use all 14 in three minutes.

Subject: Mathematics – Game

Grade Level:

Author:

Title: Prime Drag

Publisher: Creative Publications, Inc., P. O. Box 10328, Palo Alto, CA 94303

Date of Publication:

Content Summary:

Price per Unit as of 1974: $3.25 Number Ordered: 2

Special Requirements for Use: Two to four students may play. Some knowledge of prime and composite numbers is necessary.

Dominant Teaching Strategy: The game is very good to supplement the learning of prime and composite numbers.

Style of Presentation: The students move around a track, moving from 1 to 100. When they land on certain squares, they pick up a card which gives them directions to follow. The winner is the person who gets to the finish first.

Subject: Mathematics – Game

Grade Level:

Author:

Title: Prime Factor–A Game

Publisher: Creative Publications, Inc., P. O. Box 10328, Palo Alto, CA 94303

Date of Publication: 1971

Content Summary:

Price per Unit as of 1974: $4.50 Number Ordered: 2

Special Requirements for Use: This game can be played by 2, 3, or 4 students. Some knowledge of prime and composite numbers is necessary.

Dominant Teaching Strategy: The game can be used to reinforce prime and composite numbers. The game is very instructional as well as a lot of fun. It is useful for promoting good social relationships in the class.

Style of Presentation: The game is very similar to Monopoly except that the students purchase property with factor chips rather than money.

Subject: Plane Geometry

Grade Level: 10

Author: Eugene D. Nichols, Mervine L. Edwards, et al.

Title: Holt Geometry

Publisher: Holt, Rinehart, and Winston, Inc., 383 Madison Avenue, New York, NY 10017

Date of Publication: 1974

Content Summary:

1. Sets of Points
2. Proofs
3. Parallel Lines
4. Congruent Triangles
5. Polygons
6. Quadrilaterals
7. Similar Triangles
8. Circles
9. Area
10. Coordinate Geometry
11. Locus
12. Inequalities
13. Space Geometry

Price per Unit as of 1974: $8.64

Number Ordered: 50

Special Requirements for Use: This textbook is designed for individualized instruction in Geometry. There are many examples, from simple to complex, which assist students in doing their exercises. The teacher must familiarize the students with the style of presentation and, when they understand this, they are able to work on their own.

Dominant Teaching Strategy: The students can learn the mathematical concepts even if they lack reading skills. This enables the student to use the book with little teacher assistance. The book is excellent in both presentation and number of exercises and needs no supplementation. It is a good idea if the teacher checks to be sure the students understand the concepts and to help them generalize ideas. The students check their own exercises so there is immediate feedback.

Style of Presentation:

1. The objectives of each lesson are given on the pupil page.
2. A review capsule is supplied for each lesson. The capsule summarizes a skill or concept which the student must recall in order to complete the lesson.

Continued .....

Style of Presentation (Continued)

3. The lesson is developed through a sequence of worked-out examples. The use of words is cut to the minimum so that mathematical ideas stand out.
4. Hints and suggestions along the left-hand side of the page are used to direct students' attention to the key parts of the development.
5. Definitions and other key statements are clearly set out in color for easy spotting and identification. This facilitates study and review.
6. There is an abundance of examples to introduce concepts and establish patterns. These serve as references for problems of similar nature to be done by students on their own. Most students understand ideas better when they see examples worked out for them.
7. Exercises are plentiful and are grouped into parts A, B, and C, according to level of difficulty. In this way, all students may work on materials suited to their abilities. In addition, many lessons have oral exercises. They serve well as quick practice on simple concepts and skills.
8. Chapter reviews are keyed into lesson pages for quick reference. Chapter tests exactly parallel the chapter reviews.

Subject: Plane Geometry

Grade Level: 10

Author: Edward B. Curtis

Title: Plane Geometry

Publisher: Encyclopedia Britannica Press, Inc., 425 N. Michigan Avenue, Chicago, IL 60611

Date of Publication: 1961

Content Summary:

1. Set of Points
2. Proof
3. Congruent Triangles
4. Constructions
5. Parallel Lines
6. Polygons
7. Circles
8. Tangents
9. Right Triangles
10. Trigonometric Functions
11. Inequalities

Price per Unit as of 1974: $12.00 Number Ordered: 20

Special Requirements for Use: This plane geometry course consists of numerous questions for the student to answer and is used by the individual student. The answers are on the right side of the page so students can immediately check their work. The student will need a ruler, protractor, and compass to make the drawings and constructions.

Dominant Teaching Strategy: There is a clear and logical exposition of the fundamental ideas through a series of frames in the belief that clarity enhances understanding. Each frame requires a response and careful reading and is designed for the student to work through the development of each idea to achieve an understanding that comes by seeing each step of a proof.

Style of Presentation: There are five books, a supplementary book, and a test booklet. The questions follow a sequence. If a student has difficulty with one frame, he/she may understand the idea after doing a few more frames. There is much repetition which eliminates necessity for constant reviewing.

Subject: Algebra I

Grade Level: 9

Author: Daniel P. Murphy

Title: Algebra I

Publisher: Encyclopedia Britannica Press, Inc., 425 N. Michigan Avenue, Chicago, IL 60611

Date of Publication: 1961

Content Summary:

1. Basic Operations
2. Algebraic Expressions
3. Properties
4. Linear Equations
5. Rational Numbers
6. Formulae
7. Integers
8. Combining Terms
9. Linear Sentences
10. Linear Systems
11. Real Numbers
12. Factoring
13. Radicals
14. Pythagorean Theory
15. Trigonometric Functions

Price per Unit as of 1974: $12.00
Test Booklets: $1.25

Number Ordered: 20
50 test booklets

Special Requirements for Use: This Algebra I course can be used by the individual student. The course consists of numerous frames that the students must work out and check. The only one who knows when a mistake is made is the student. This is good for students who do not like to respond in class.

Dominant Teaching Strategy: This program can make the learning of algebra easy for the student who likes programmed learning. The student can use the program with little teacher assistance. The teacher is needed only when the student does not understand an idea.

Style of Presentation: The program consists of five books, a supplement, and a test booklet. There are always an explanation and then a number of problems to give practice in working out a certain idea. It is not necessary to do a lot of reviewing because of the amount of repetition.

The five books each contain about 2,000 frames and there are figures and tables in the supplementary book. After a concept or a number of concepts are covered, the student takes a test which is scored by the teacher.

Subject: Algebra I

Grade Level: 9

Author: Eugene D. Nichols, Mervine L. Edwards, et al.

Title: Holt Algebra I

Publisher: Holt, Rinehart and Winston, Inc., 383 Madison Ave., New York, NY 10017

Date of Publication: 1974

Content Summary:

1. Basic Operations
2. Properties
3. Integers
4. Linear Equations
5. Linear Inequalities
6. Factoring
7. Fractions
8. Algebra in a Plane
9. Linear Sentences
10. Linear Systems
11. Functions
12. Real Numbers
13. Quadratic Formula
14. Plane Geometry

Price per Unit as of 1974: $8.28 Number Ordered: 50

Special Requirements for Use: This textbook is designed for individualized instruction in algebra. There are many examples, from single to complex, which assist students in doing their exercises. The teacher must familiarize the students with the style of presentation and, when they understand this, they are able to work on their own.

Dominant Teaching Strategy: The students can learn the mathematical concepts even if they lack reading skills. This enables the student to use the book with little teacher assistance. The book is excellent in both presentation and number of exercises and needs no supplementation. It is a good idea if the teacher checks to be sure the students understand the concepts and to help them generalize ideas. The students check their own exercises so there is immediate feedback.

Style of Presentation:

1. The objectives of each lesson are given on the pupil page.
2. A review capsule is supplied for each lesson. The capsule summarizes a skill or concept which the student must recall in order to complete the lesson.

Continued .....

Style of Presentation (Continued)

3. The lesson is developed through a sequence of worked-out examples. The use of words is cut to the minimum so that mathematical ideas stand out.
4. Hints and suggestions along the left-side of the page are used to direct the students' attention to the key parts of the development.
5. Definition and other key statements are clearly set out in color for easy spotting and identification. This facilitates study and review.
6. There is an abundance of examples to introduce concepts and establish patterns. These serve as references for problems of similar nature to be done by students on their own. Most students understand ideas better when they see examples worked out for them.
7. Exercises are plentiful and are grouped into parts A, B, and C, according to level of difficulty. In this way, all students may work on materials suited to their abilities. In addition, many lessons have oral exercises. These serve well as quick practice on simple concepts and skills.
8. Chapter reviews are keyed into lesson pages for quick reference. Chapter tests exactly parallel the chapter review.

Subject: Algebra I and II

Grade Level:

Author: Charles Proctor and Joseph Lacy

Title: Algebra Skills Kit

Publisher: Science Research Associates, Inc., 259 East Erie Street, Chicago, IL 60611

Date of Publication: 1969

Content Summary:

1. Absolute Value
2. Integers
3. Graphing
4. Fractions
5. Evaluating Algebraic Expressions
6. Combining Like Terms
7. Linear Equations
8. Linear Inequalities
9. Factoring
10. Radicals
11. Linear Systems
12. Trigonometric Functions

Price per Unit as of 1974: $83.95
Record Book: $.54
Diagnostic Tests: $7.37 per set

Number Ordered: 1 kit
60 Student Record Books
1 set of tests

Special Requirements for Use: The teacher pinpoints the student's strengths and weaknesses by the use of tests. The student can then use the kit to obtain practice in the areas of weaknesses.

Dominant Teaching Strategy: The kit can be used to supplement an Algebra I textbook. Its purpose is to give a student practice in basic skills and algebraic operations. The kit can be used after Algebra I to determine a student's weaknesses before he/she takes Algebra II.

Style of Presentation:

1. Survey Test
   The Survey Test is used to identify the skills with which individual students have difficulty and which Diagnostic Tests they must take.

Continued .....

Style of Presentation (Continued)

2. Diagnostic Tests
   There are 12 Diagnostic Tests for each problem students get wrong there is a corresponding exercise card.
3. Reference Cards
   They are used to give definitions of terms and symbols used in each section.
4. Exercise Cards
   There are exercise cards corresponding to each problem on the diagnostic test.
5. Progress Tests
   There are 12 progress tests, one for each skill area. These are used to determine whether or not the student has overcome his/her weaknesses.
6. Student Record
   This is where the students record the data from their Survey Tests, Diagnostic Tests, and Progress Tests. They also keep records of the exercises they have completed.

Subject: Algebra II

Grade Level: 11

Author: Eugene D. Nichols, Mervine L. Edwards, et al.

Title: Holt Algebra II

Publisher: Holt, Rinehart and Winston, Inc., 383 Madison Avenue, New York, NY 10017

Date of Publication: 1974

Content Summary:

1. Linear Equations
2. Linear Inequalities
3. Factoring Quadratics
4. Rational Expressions
5. Irrational Numbers
6. Quadratic Formulae
7. Quadratic Equations
8. Linear Sentences
9. Analytic Geometry
10. Functions
11. Conic Sections
12. Systems of Equations and Inequalities
13. Progressions and Series
14. Logarithms
15. Trigonometric Functions
16. Graphs and Identities

Price per Unit as of 1974: $8.64 Number Ordered: 50

Special Requirements for Use: This textbook is designed for individualized instruction. There are many examples, from simple to complex, which assist students in doing their exercises. The teacher must familiarize the students with the style of presentation and, when they understand this, they are then able to work on their own.

Dominant Teaching Strategy: The students can learn the mathematical concepts even if they lack reading skills. This enables the student to use the book with little teacher assistance. The book is excellent both in presentation and number of exercises and needs no supplementation. It is a good idea if the teacher checks to be sure that students understand the concepts and to help them generalize ideas. The students check their own exercises so there is immediate feedback.

Style of Presentation:

1. The objectives of each lesson are given on the pupil page.
2. A review capsule is supplied for each lesson. The capsule summarizes a skill or concept which the student must recall in order to complete the lesson.

Continued .....

Style of Presentation (Continued)

3. The lesson is developed through a sequence of worked-out examples. The use of words is cut to the minimum so that mathematical ideas stand out.
4. Hints and suggestions along the left-hand side of the page are used to direct students' attention to the key parts of the development.
5. Definitions and other key statements are clearly set out in color for easy spotting and identification. This facilitates study and review.
6. There is an abundance of examples to introduce concepts and establish patterns. These serve as references for problems of similar nature to be done by students on their own. Most students understand ideas better when they see examples worked out for them.
7. Exercises are plentiful and are grouped into parts A, B, and C, according to level of difficulty. In this way, all students may work on materials suited to their abilities. In addition, many lessons have oral exercises. These serve well as quick practice on simple concepts and skills.
8. Chapter reviews are keyed into lesson pages for quick reference. Chapter tests exactly parallel the chapter reviews.

Subject: Algebra II

Grade Level: 11

Author: Robert J. Titiev

Title: Second Year Algebra

Publisher: Encyclopedia Britannica Press, Inc., 425 N. Michigan Avenue, Chicago, IL 60611

Date of Publication: 1961

Content Summary:

1. Real Numbers
2. Properties
3. Simplifying Expressions
4. Linear Equations
5. Factoring
6. Rational Expressions
7. Quadratic Equations
8. Linear Sentences
9. Irrational Numbers
10. Logarithms

Price per Unit as of 1974: $12.00
Test Booklets: $1.60

Number Ordered: 20
50 test booklets

Special Requirements for Use: This Algebra II course consists of numerous frames the student must work out. After working out each page, students check their work so there is immediate feedback. The only person who knows when a mistake is made is the student. This is good for students who do not like to respond in class.

Dominant Teaching Strategy: This program can make the learning of algebra easy for the student who likes programmed learning. The student can use the program with little teacher assistance. The teacher is needed only when the student does not understand an idea.

Style of Presentation: The program consists of five books, a supplementary book, and a test booklet. There are always an explanation and then a number of exercises to give practice in working out a certain idea. There is much repetition which makes reviewing unnecessary.

The five books each contain about 2,000 frames and there are figures and tables in the supplementary book. After an idea or a number of ideas are discussed, the student takes a test which is scored by the teacher.

THE AIDE

The role of ARC aide is defined as clerk or clerk-typist. Underlying this operational definition are three assumptions:

1. Professional educators are better equipped to teach than to perform clerical tasks.
2. Students are best served when their teachers are not burdened by clerical tasks, but are free to devote their energies to teaching, planning, and evaluating learning experiences.
3. Clerks are better equipped to perform clerical tasks than to teach English and/or mathematics.

Thus, the aide in this situation is given no instructional duties.

Part I of this leaflet describes some of the attributes of the successful aide. Part II recommends the content and sequence of orientation sessions and training activities.

I. SELECTING THE AIDE

The ARC aide not only performs clerical tasks efficiently, but, in addition, acts as role model for students interested in clerical work. The individual responsible for screening applicants must be aware of both of these requirements when conducting interviews.

Since regular attendance is vitally important, it is probably well to select from suitable candidates those for whom the mechanics of getting to work present the fewest problems.

There follows a listing of some attributes of the ideal aide:

1. Well organized, thorough, and accurate
2. Adequate typing skills
3. Accepts direction well and acts upon suggestions graciously
4. Soft-spoken, courteous, and business-like
5. Arrives for work on time and is absent only when necessary
6. Does not require minute by minute supervision
7. Enjoys young people, yet does not become emotionally involved with individual students.

II. AIDE ORIENTATION

It is suggested that the individual responsible for supervising and evaluating aide performance conduct the formal orientation. Orientation consists of two days of formal training followed by five days of on-the-job training, supervised by the ARC teachers.

The first orientation day occurs three days after the ARC teachers have reported for work, and seven days before the ARC opens. This timing permits teachers to determine the placement of all materials of instruction and equipment before the on-the-job phase of aide training. It further assures adequate training for aides before the Center becomes fully operational.

Materials Needed for Orientation

Each participant should be provided with a copy of *The Academic Resource Center: Handbook for Aides.*

The Agenda for Orientation

The agenda for orientation sessions follows:

Day One

I. Introductions

II. Familiarization with Surroundings

- A. Assign Work Stations
- B. Complete Employment Forms (if necessary)
- C. Provide Organizational Chart of School
- D. Tour the Building (Provide map)

BREAK

III. The Program Mission and the Relationship of the Program to the School

IV. The ARC in the Program

V. The Role of the Aide in the ARC

VI. Distribute Handbooks

This first day is planned to help the new employee to locate himself/herself in the school and in the ARC. It also provides background information for the specific training of Day Two.

Day Two

I. The Filing System

BREAK

II. The Aide's Responsibilities

A. Setting-up the ARC

B. Day-to-Day Operation of the ARC

1. Procedures Specific to this Implementation

2. Instruction in Operating Audio-visual Equipment

The *Handbook for Aides* guides the second session until the procedures specific to the local implementation are presented. A written summary of these procedures should be given to each aide after thorough discussion. Such procedures might include: receiving shipments, placing orders, reporting malfunctioning equipment, taking attendance, lending materials, receiving substitutes, etc.

The next five days are devoted to on-the-job training and readying the Center for use. Preparing student lists, setting up files, and unpacking ILA materials are all done under teacher supervision and usually with teacher assistance. These activities not only prepare the Center for use, but also help the aide to connect materials with their titles and locations. Talking with the teachers as work progresses helps the aide to understand the reason for the organizational scheme.

It should be emphasized that a well-trained aide who understands the importance of his/her role is invaluable in the operation of the ARC.

ARC Basic Information Series: Leaflet VII

ORIENTING STUDENTS

Students entering an ARC for the first time often feel uncomfortable. The familiar supports of the traditional classroom have been withdrawn, and often students are not sure just how they should respond. The orientation session is designed to assure the students that they have not been cast adrift, but that the ARC does offer students a structure within which they can influence course content, learning route, and pace. Orientation defines that structure and helps students visualize behaviors appropriate to it.

Upon enrollment, each student should be given written notice of the date, hour, and location of the orientation session. Because students will usually be scheduled for the Center several months in advance, a postcard reminder should be mailed a few days before the orientation session. It may be helpful to address the first notice and the postcard at the same time. The ARC staff has the responsibility for mailing the notices at the right time.

Student orientation requires approximately one and one-half hours. A maximum of forty students are accommodated in one session. Each session is conducted by the English teacher and the mathematics teacher responsible for guiding that particular group of students.

As each student arrives, an aide gives him/her a card containing the student's name and names of his/her English and mathematics teachers. Half of the cards are marked *A* and half *B*. Students meet as one group at the start of the session. The teachers introduce themselves and one teacher introduces the aide or aides. After introductions, one teacher takes students whose cards are marked *A* and the other takes those whose cards are marked *B*. At the close of the first period, teachers exchange groups for a second period. Time divisions are indicated below.

I. WELCOME. INTRODUCTIONS. (10 minutes)

II. GROUP DIVIDES

	English	*Mathematics*
Period 1 (40 minutes)	Group A	Group B
Period 2 (40 minutes)	Group B	Group A

III. STUDENTS LEAVE

On the way out, each participant is given a copy of *The ARC: Questions and Answers for the Student.*

In each period, the teacher discusses the following items as each item pertains to his/her subject. Items 1 through 5 relate to the learning sequence. After they have been discussed, the student should have a general understanding of the support available in the ARC. Items 6 through 9 concern the daily operation of the Center. Item 10 produces information that the teacher will use for future planning.

1. Describe the program.

   English: Composition, Literature, Note-taking, Reading, Listening

   Mathematics: General Mathematics, Algebra I and II, Geometry, Elementary Functions

2. Explain the choices that are available to the individual student.
3. Show how those choices are translated into long term objectives and then into study guides.
4. Show how current and completed work is stored.
5. Explain the marking system.
6. Explain the system for taking attendance.
7. Define the student's relationship to other ARC instructors and to aides.
8. Tour the area to show the location of materials specific to the subject.
9. Define the student's responsibilities in regard to handling materials.
10. Identify those students who will need help in operating audio-visual equipment.

ARC Basic Information Series: Leaflet VI

SETTING UP THE ARC

This leaflet discusses the organization of space in the ARC. Comments assume that a single open area is to be occupied by five teachers, two aides, and a maximum of fifty English and fifty mathematics students per period. It is expected that readers will adapt this information to their particular circumstances.

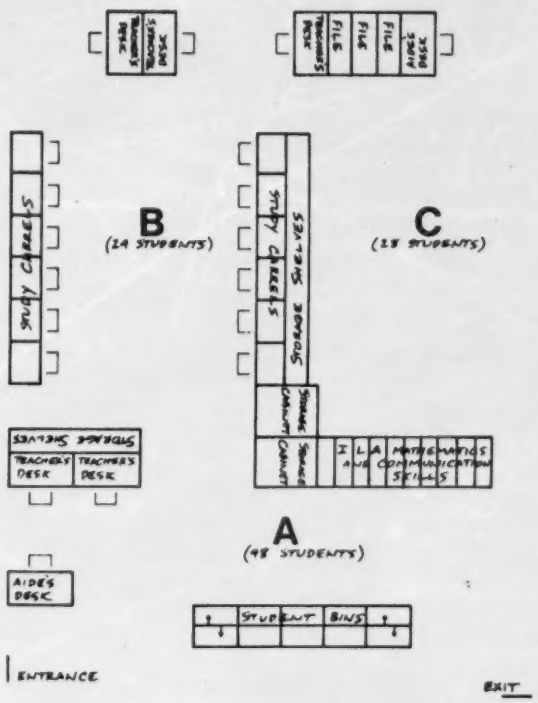
The task of designing a functional Center will be easier if an organizing principle is identified before space allocation is attempted. The ARC is the outgrowth of the belief that learning efficiency improves as the gap between the individual's learning needs and his/her instructional program is diminished. Thus, individualized instruction is mandated, but implementers are free to accept or reject the usual attributes of chronological age, grade placement, or the courses in which students are enrolled as determinants of area organization.

Four organizational schemes for the ARC are suggested in this leaflet. Each is accompanied by a floor plan and a brief discussion of its probable operational impact. Floor plans are scaled roughly to twelve feet per inch. In the first plan, some indication of the location of additional storage shelves is given. This is not done in Figures 2, 3, or 4 because ample wall space is evident in each of those plans. *Entrance* and *exit* are specified in Figure 1 because in that plan student bins are placed at one end of the room between two doors. In all other plans, student bins are centrally located and are equally accessible from all doors. Seating areas for students, rather than the actual arrangement of furniture, are indicated in all plans. This was done because some Centers may use tables with four to six students grouped around each, while others will prefer individual desks and chairs.

I. THE ARC ARRANGED ACCORDING TO THE TYPE OF LEARNING ACTIVITY

In this plan, the Center is organized into different learning activity areas. Subject, grade placement, and present level of achievement have nothing to do with where a student works in this situation. Figure 1 displays a sample floor plan based on this organizing principle.

FIGURE 1



The ARC Arranged According to the Type of Learning Activity

Activities requiring the greatest amount of human interaction take place in Area A. It is here that games are played, discussion groups meet, peer tutoring and group instruction occur. Area A is located close to the entrance, exit, and student bins, where a good deal of activity is usually expected under any circumstances.

Area B contains 12 individual carrels housing audio-visual equipment. Carrels plus additional seating space permit this area to accommodate 24 students. Minimal human interaction takes place in Area B. Students work independently on tasks requiring concentration. If a student should need assistance from a teacher or information from another student, he/she leaves the area and goes to the individual with whom he/she needs to consult.

Those students whose study guides require that they work on tasks with little or no interaction with fellow students, but relatively frequent teacher intervention, congregate in Area C.

This type of organization demands great teacher flexibility. Although the English specialist still has major responsibility for directing the English programs of appropriate numbers of students and the mathematics specialist the mathematics program, each teacher must be flexible enough to cross discipline lines occasionally in the day-to-day monitoring of students.

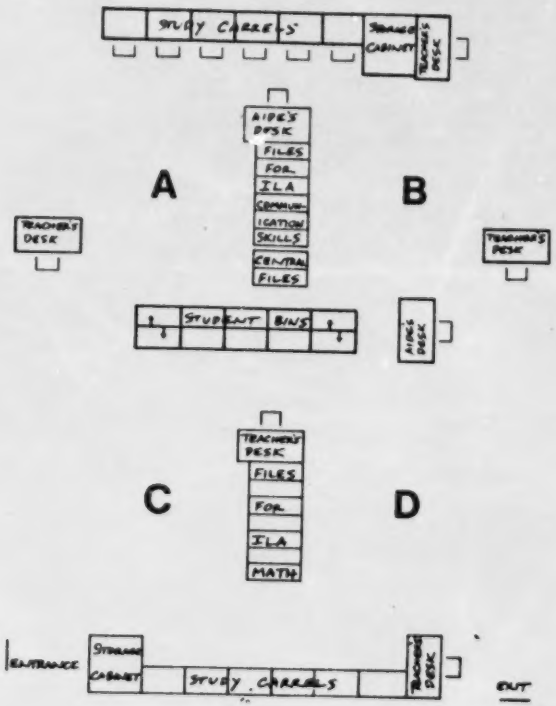
One English and one mathematics teacher will be found in Area C and one English and one mathematics teacher in Area A. Any available teacher can assume responsibility for intervening in Area B, if needed. However, rather than leave this as a general responsibility, monitoring Area B can be assigned on a rotating basis, if teachers so desire.

Scheduling students to assure adequate dispersal involves advance planning. Each staff will devise its own system. Two ways of handling the problem are suggested here: (1) allocate a certain number of seats per section per period to each teacher, or (2) use weekly sign-in sheets and permit students to schedule themselves.

II. THE ARC ARRANGED ACCORDING TO SUBJECT

Figure 2 presents a sample floor plan for an ARC organized according to the subjects taught, English and mathematics. Student bins are in the center of the area, equally accessible from any corner of the room. Therefore, entrances and exits are not specified.

FIGURE 2



The ARC Arranged According to Subject

Since two English and two mathematics teachers work in the Center every period, four teaching stations are established: Areas A and B for English, and Areas C and D for mathematics. Each subject is further sub-divided. English students working on ILA or programmed material are assigned to Area A. Those working on composition or literature report to Area B. Mathematics is divided as follows: Area C is reserved for students using ILA, games, or kits; and Area D for algebra or geometry students. Instructional materials are dispersed accordingly.

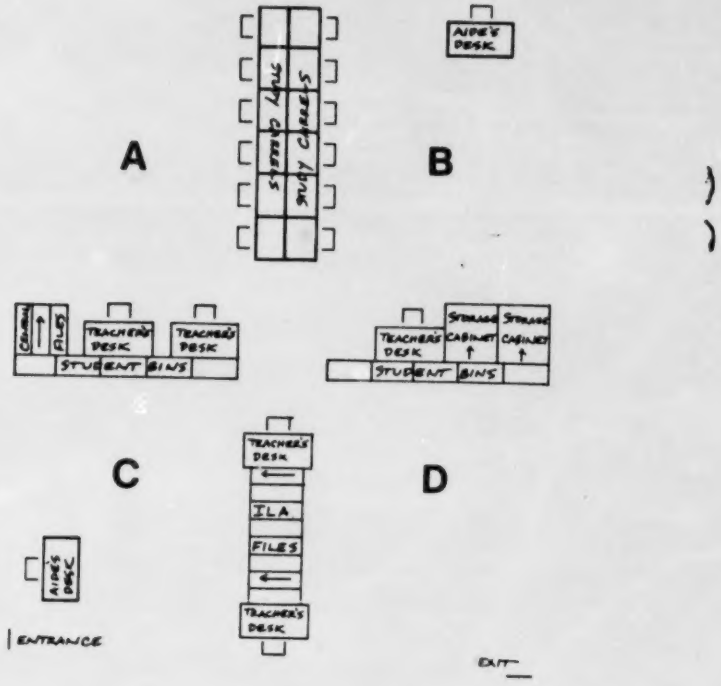
Each teacher is assigned to one area per period. Students move from one area to another as their learning needs change. There is less student movement in the subject-centered ARC than is found in the learning activity type Center. The subject-centered setting is therefore somewhat less demanding on the teacher than the ARC organized around the type of learning activity.

The subject-centered organizational pattern was used at the pilot site.

III. THE ARC ARRANGED ACCORDING TO WORK HABITS OF STUDENTS

Under this organizational system, students are grouped according to their work habit needs. The object is to provide maximum independence for each student, while at the same time offering instruction for those students who exhibit inefficient work habits. This objective must be thoroughly understood by teachers operating a Center organized in this fashion. Students must be offered a carefully planned series of learning experiences designed to build useful work habits.

FIGURE 3



The ARC Arranged According to Work Habits of Students

Figure 3 presents a sample floor plan for this type of organization. Students are not grouped according to subject or achievement. Therefore, carrels and ILA materials are centrally located on the assumption that they need to be available to some students in each area at all times.

Area A houses independent, self-motivated individuals. Regularly scheduled conferences with the teacher to whom they are responsible afford sufficient support for these students. They consult teachers in Areas B and C when day-to-day guidance is required.

Students in Area C are those who need assistance from time to time but are able to focus on an academic task for a reasonable length of time. One teacher needs to be on hand here most of the time.

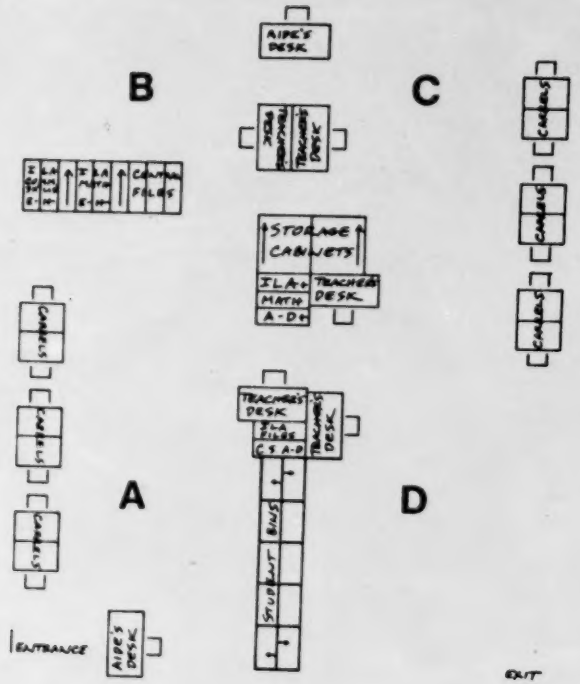
Area B is supervised by two teachers, one English and one mathematics. This area receives individuals in need of close supervision. Although learning prescriptions for these students usually set very short-term goals, those goals will be attained only if teachers give close guidance and much support.

Area D is occupied by students needing the most help. Relatively few students are here and the teacher supervising their work has some special knowledge of learning disabilities.

IV. THE ARC ARRANGED ACCORDING TO ACHIEVEMENT LEVEL

Students are dispersed throughout the Center according to their achievement level in this arrangement. Figure 4 displays a sample floor arrangement.

FIGURE 4



The ARC Arranged According to Achievement Level

Area A is planned for students functioning below fifth grade equivalent. ILA levels A through D, both Mathematics and Communication Skills, need to be at hand here. Carrels are available because, at this level, skills are frequently taught via audio-visual equipment.

Area B houses students achieving from 5.1 to 9.0 grade equivalent.

Students achieving from 9.1 to 12 grade level are assigned to area C.

Students functioning above grade 12 report to area D. In actual practice, Areas C and D are not mutually exclusive.

Two teachers, English and mathematics, move between Areas A and B. Areas C and D are supervised in the same way. Instructional materials are dispersed according to need.

V. GENERAL COMMENT

The organizational plan chosen for the projected implementation represents the point of view of the implementers. It may be an adaptation of one of the four suggested in this leaflet, or it may be entirely different, but the arrangement of the ARC and the dispersal of teachers and materials should be consistent with that point of view.

Each teacher responsible for guiding an individual student makes the area assignment for his/her subject. The student shares in making this decision. The decision is reviewed at frequent intervals to ascertain whether the learning environment prescribed continues to be the appropriate one. Teachers must keep in mind the fact that one individual may demonstrate low achievement in reading and high achievement in mathematics, or poor work habits in English composition and excellent work habits in mathematics applications. Individualized instruction must provide not only for differences between students, but also for differences within each student.

ARC Basic Information Series: Leaflet VIII

ORIENTING INTERESTED OBSERVERS

It is vitally important that all individuals who come in contact with the ARC have access to accurate information concerning it. This is especially true if the ARC represents a very different kind of educational environment from that usually found in the school. As with any educational innovation, opposition will be encountered, but, insofar as possible, those opposing the ARC should be opposing the ARC, and not an imaginary version of it.

Suggestions for the Teacher contains recommendations for structuring visits to the ARC. Those suggestions are summarized below.

1. Assign someone to greet visitors. This individual should not be a member of the ARC staff. It is appropriate that an administrator greet some visitors while a gracious secretary may guide others.
2. Designate an area outside the ARC as the place for visitors to assemble for a preliminary briefing.
3. Give each visitor some information about the school and a description of the ARC and its function. A sample bulletin and overview are found in the appendix to this leaflet.
4. Tell visitors how long they may observe in the ARC.
5. Emphasize that the ARC is designed as a resource for students. Ask visitors to avoid engaging students or teachers in conversation.

Members of the faculty and parents of ARC students should have the opportunity to get acquainted with the ARC as soon as possible. Those two orientations are discussed in the following sections of this leaflet.

ORIENTATION FOR PROFESSIONAL COLLEAGUES

Before the ARC opens, the professional staff of the school housing it should be offered some firsthand *experience* with the Center. This orientation is best conducted before teachers not involved in the ARC meet ARC students. This orientation should be held when ARC staff members have completed preparation for the opening of the Center and are free to participate in the orientation of their colleagues.

A sample agenda follows. There is no indication of who chairs the session or of who presents each topic. This is purely a matter of local preference and has been left to the discretion of the implementers. If the time allotments are acceptable, the session will require about two and one-half hours.

AGENDA

I. Introduce ARC teachers and Aides (10 minutes)

In general terms, define the role of each.

II. Present an Overview of the ARC (40 minutes)

Discuss its relationship to RBS.

Define the objectives, the instructional mode, and the marking system.

III. Provide a List of ARC Students (30 minutes)

Include periods, subjects, and name of teacher responsible for directing the student's work in each subject.

Discuss the effect of the ARC on the rest of the student's school life.

IV. Questions and General Discussion (20 minutes)

V. Refreshments. Time to browse and talk informally.

ORIENTATION FOR PARENTS OF ARC STUDENTS

This orientation takes place after student orientation and as soon after the opening of the ARC as possible. Students are invited to accompany their parents to this meeting. A sample agenda follows. If the time allotments suggested are acceptable, the total session will require approximately two hours.

AGENDA

I. Introduce ARC Teachers and Aides (10 minutes)

In general terms, define the role of each.

II. Present an Overview of the ARC (50 minutes)

Compare the ARC with the learning environment available to students in the rest of the school.

Discuss the concepts of *mastery, performance objectives, individual study guides,* and *evaluation.*

Explain why the ARC was chosen as the learning environment for this group of students.

III. Questions and Discussion (20 minutes)

IV. Refreshments. Parents tour facility guided by their own child or ward. (40 minutes)

APPENDIX
OVERVIEW OF THE ACADEMIC RESOURCE CENTER

The overall goal of the Academic Resource Center (ARC) is to encourage each student to become a self-motivated learner capable of identifying personal learning needs and of searching out appropriate routes for satisfying those needs.

The specific objectives of the ARC are:

1. To provide opportunities for students functioning two or more years below expected grade level in English and/or mathematics to acquire needed competencies.
2. To provide a variety of structured courses in English and mathematics so that students functioning at or near expected grade level may choose one or more such courses to fulfill graduation requirements and/or personal interest.
3. To provide guidance and supervision for students interested in, and capable of pursuing, a program of independent study in some aspect of English and/or mathematics.

The ARC provides a knowledgeable staff, varied instructional material, and a conveniently located work area. The student is encouraged to use these resources to identify personal academic goals and to engage in a course of action designed to lead to the attainment of those goals.

An individualized instructional mode is employed in the ARC. Essentially this instructional mode involves five operations:

1. Student, counselor, teacher (and any other individual who is in a position to contribute to the process) assess the student's educational needs and designate some aspect of English and/or mathematics for study.
2. Appropriate instructional materials and/or activities are selected.
3. A study guide is constructed with and for the student.

BULLETIN FOR VISITORS

Name and Location of School

Administrative Staff

Total Number of Students

Daily Schedule

Staff of the Academic Resource Center (ARC)

Name and Function

Total Number of Students Enrolled in the ARC

Number of ARC Students by Grade

Number of ARC Periods per Student

In English

In Mathematics

Maximum Number of Students in the ARC during any given period

4. Periodically throughout the learning process, student and teacher confer to evaluate what has been accomplished and to adjust the learning prescription.
5. At the close of the instructional sequence, some assessment, usually comparable to that employed before instruction, is used to evaluate the learning that has taken place.

At the end of each marking period, the student and an instructor review the student's work in order to develop a response to each of the following questions:

1. Did the student maintain a purposeful attitude?
2. Did the student evidence initiative in designing and carrying out his/her own program?
3. Did the student consistently identify and attain short term objectives?
4. Did the student evidence academic progress?

ARC Basic Information Series: Leaflet IX

INITIATING PLACEMENT PROCEDURES

An individual learning program for each student is designed after careful consideration of the student's status in regard to the following:

1. Past performance as demonstrated by previous marks.
2. Achievement as measured by a recently administered standardized test.
3. Performance as demonstrated by completion of a relevant task.
4. Interests as articulated by the student.
5. Career goals.

Past performance as demonstrated by marks of the previous year and achievement as measured by a recent standardized test should be available to teachers two weeks before the ARC opens. (See the Enrollment/Attendance card and Form I: *Achievement Test Results.*) With this information in hand, tasks relevant to the student's placement in either mathematics or English are assigned to each student. A study guide, once prepared, together with any necessary materials, is put in the student's folder. The folder is then placed in the student's bin.

Examples of initial assignments follow. Recent CTBS (Comprehensive Tests of Basic Skills) scores, reported as grade equivalents, are available for each student.

Student A

Grade: 11

CTBS Reading: 5.3

CTBS Arithmetic: 6.1

Last English Mark: Lowest grade possible without actually failing.

Last Mathematics Mark: D

General Mathematics: C

Initial English Assignment: (Written on Student's Study Guide; see Appendix for copies of ILA Entrance Tests Instructions)

Entrance Test for ILA Communication Skills, Level E Instruction sheet enclosed

Initial Mathematics Assignment: (Written on Student's Study Guide)

ILA Mathematics Entrance Tests and Instruction sheet enclosed

Student B

Grade: 10

CTBS Reading: 11.9

CTBS Arithmetic: 10.4

Last English Mark: A

Last Mathematics Mark: Algebra I, C

Initial English Assignment: (Written on Student's Study Guide)

Use *Perfecting Reading and Writing Skills Experience 3* by Crawford and Schachter. Read Oscar Wilde's essay, "Impressions of America," page 40. After you have read the essay, complete Exercises A, B, C, and Writing Experiences #5. Please use the paper enclosed for these exercises. Do not write in the book.

Check to see that your name and the date are on each sheet before you put finished papers in the file box marked *English*.

Initial Mathematics Assignment: (Written on Student's Study Guide)

A study guide for *Holt Geometry* is enclosed. Your mathematics teacher will meet with you and other Geometry students to help you to understand how to use the study guide.

Student C

Grade: 12

CTBS Reading: 10.3

CTBS Arithmetic: 11.5

Last English Mark: C

Last Mathematics Mark: Geometry, B

Initial English Assignment: (Written on Student's Study Guide)	Use *Perfecting Reading and Writing Skills Experience 1* by Crawford and Schachter. Read "Man on the Move," page 52. Complete Exercises A, B, and C. Please do not write in the book. When you have finished, check to see that your name and the date are on each paper, and then put your papers in the file box marked *English*.
Initial Mathematics Assignment: (Written on Student's Study Guide)	A study guide for *Holt Algebra II* is enclosed. Your mathematics teacher will meet with you and other Algebra II students to help you to understand how to use the study guide.

When the ARC opens, students will fall roughly into three groups:

1. those whose reading and/or arithmetic skills are below the level usually expected of ninth graders.
2. those functioning at or close to their expected levels.
3. those whose skills excel their grade placement.

Students in the first group take the appropriate ILA Entrance Tests. Students falling into the second group in English are asked for a sample of reading comprehension and writing skills. Those samples supply information for more definitive diagnoses and, as a result, more precise assignments. Perhaps the student demonstrates excellent literal comprehension but faulty evaluative skills. The next assignment for such a student would focus on further assessment of evaluative comprehension. If the composition indicates a need for basic grammar, the next assignment might route the student into a programmed grammar text, etc.

Mathematics for students in the second group will most likely be Algebra or Geometry. For both of these branches of mathematics, students need group guidance before they are released to work at their own pace.

English students in the third group usually start their programs with individualized literature material. Mathematics for these students, as for those in the second group, is apt to be a specific branch of that discipline.

High achieving students should be the first to be scheduled for individual conferences. These students often have already established their long range goals, and their interests and skills are well enough developed to permit them to identify independent study projects with relative ease. When study guides are set up, they no longer require daily assignments.

Generally speaking, initial assignments should be constructed so that only about one third of the students are able to complete their assignments in one period. The teacher evaluates the work of the students who have completed their assignments, confers with them, and prepares their next assignments while other students are still working on their initial assignments.

Teachers confer with individual students during teaching periods and, by appointment, during their preparation periods. The first few weeks of the ARC are busy weeks for the staff. If it is humanly possible to do so, all of one day's completed work should be marked and assignments made before the next day begins. The success of the implementation hinges, to no small degree, upon the efforts of the staff during this initial period. The pace soon slackens and fewer and fewer preparation periods need be devoted to student conferences. Student programs are established and an even flow of work reduces tension.

Individual learning programs are derived gradually. The teacher begins with a general picture of the student's achievement level and, through successive sampling of performance, observation of work habits, and conversations with the student, arrives at an appropriate individualized learning program. The initial process may take as long as four weeks. Once established, the program is then adjusted as the student grows and learns and develops.

INSTRUCTIONS FOR ILA MATHEMATICS ENTRANCE TESTS

Here are five Entrance Tests. Please put your name on each test before you begin to work.

Do the tests in the following order:

1. N-PV (Numeration-Place Value)
2. A-S (Addition-Subtraction)
3. M-D (Multiplication-Division)
4. G-M (Geometry-Measurement)
5. APP (Applications)

Use the following procedures for each test.

Start to work on page 1. Do each problem or example in order.

Each page is a little more difficult than the page before it. When you come to a page that is too hard for you, stop. Turn back to page 1 of the test. Write *Finished*, your name, and the date at the top of the page. Put the finished test in the file box marked *Mathematics.*

INSTRUCTIONS FOR ILA COMMUNICATION SKILLS ENTRANCE TEST

Here is an ILA Entrance Test. Please write your name on the test before you begin to work.

Start to work on page 1. Complete all of the items on one page before you begin to work on the next page.

Read directions thoughtfully and follow them carefully.

When you finish the test, write *Finished*, your name, and the date on the first page.

Put the finished test in the file box marked *English.*

ARC Basic Information Series: Leaflet X

ASSESSING THE IMPLEMENTATION

The first nine leaflets of the *Basic Information Series* chart a course designed to lead to a smoothly operating ARC. If that course has been followed and an ARC does indeed exist, assessment of the implementation is recommended. Assessment tells the educational planners just how closely the implementation approximates the model. If variations are found, those that are the result of conscious planning can be separated from those that are purely accidental. Measures can then be taken to reduce the amount of accidental variation.

This leaflet first discusses who should perform the assessment and when. A workable process is then outlined. Procedures for synthesizing and reporting the findings are contained in the final section.

I. THE ASSESSMENT COMMITTEE

A committee of four can carry out the assessment of the ARC implementation. Although all four should understand and be in harmony with the concept of individualized instruction, specific knowledge of the implementation strategies employed is not required. ARC instructors are not eligible for membership on this committee.

Three members of this committee must be free to observe in the ARC for one hour at a time on six different occasions. The fourth member, the chairperson, is responsible for synthesizing the reports of the three observers, chairing the meetings at which recommendations are devised, and preparing the final report.

The implementation assessment occurs six or eight weeks after the opening of the ARC. The assessment should be performed and the final report filed within a four week period.

II. THE ASSESSMENT PROCESS

Assessment of implementation involves comparing the model with the implementation in six key areas: (1) staffing, (2) scheduling, (3) orientation, (4) area arrangement, (5) instructional materials and information flow, and (6) human interaction.

The committee as a whole gathers information needed to assess status in regard to the first three items listed above: staffing, scheduling, and orientation. Observation periods are not required for those topics.

Area arrangement, instructional supplies, and human interaction are evaluated independently by each of three members of the committee. Individuals may observe at the same time, but observers should not consult with one another during the observation period or while they are preparing their reports. Each observation period is devoted to a single topic. Two observations, one hour in the morning and one hour in the afternoon, are needed to attend to each of the last three areas.

Specific procedures are recommended for arriving at conclusions about each of the six topics. Those procedures follow.

A. INFORMATION COLLECTED FROM EXISTING RECORDS

Staffing

Complete the following table.

	MODEL	IMPLEMENTATION
Total Number of Students	300	
Total Number of Teachers	5	
Total Number of Aides	2	
Student/Teacher ratio	60/1	
Student/Aide ratio	150/1	

The figures on the table above are the basis for the information entered beside the topic *Staffing* on *Implementation Assessment Chart 1.*

IMPLEMENTATION ASSESSMENT CHART 1

TOPIC	VARIATION NOTED (Yes – No)	CORRECTIVE ACTION RECOMMENDED
Staffing		
Scheduling		
Orientations		

Copies of the *ARC Implementation Assessment Charts* have been included with the *Basic Information Series.*

Scheduling

Completing the following table will give a picture of student distribution. Enter the student/teacher ratio for each period. Include only those teachers actually scheduled to teach that period and those students actually scheduled for that particular subject. Omit teachers assigned for preparation period and students using community resource sites.

ACADEMIC RESOURCE CENTER
IMPLEMENTATION ASSESSMENT

PERIOD	STUDENT/TEACHER RATIO PER PERIOD									
	Monday		Tuesday		Wednesday		Thursday		Friday	
	Eng.	Math	Eng.	Math	Eng.	Math	Eng.	Math	Eng.	Math
1										
2										
3										
4										
5										
6										

The model recommends that there be a fairly even distribution of students across periods and that the student/teacher ratio per period, per subject, not exceed 20/1. With this in mind, examine the table that you have just completed and enter your conclusions about the scheduling pattern in the appropriate column of *Implementation Assessment Chart 1.*

Orientation

In the left hand column below are listed features of the model that pertain to orientation. If a feature listed is found in the implementation, write *yes* beside it. If it is not found in the implementation, write *no*. When features of the model have all been compared to the implementation, enter conclusions on *Implementation Assessment Chart 1.*

FEATURES OF THE MODEL	FOUND IN THE IMPLEMENTATION
Orientation sessions have been held for:	
ARC Teachers	
ARC Aides	
ARC Students	
Parents of ARC Students	
The Staff of the Home School	
A system for receiving visitors is operational.	
An employee, not an ARC staff member, has been assigned the task of receiving visitors, conducting briefing sessions, and escorting visitors to the ARC.	
An agenda for briefing sessions has been agreed upon.	
A location, outside of the ARC, has been specified for briefing sessions.	
An information bulletin is prepared and a copy is given to each visitor.	

B. *INFORMATION GATHERED THROUGH OBSERVATION*

Two one-hour observation periods per topic are required to assess the status of the implementation in regard to area arrangement, instructional supplies, and human interaction. Three committee members, operating independently of one another, observe in the ARC for the required number of hours. They record their conclusions on *Implementation Charts 2A, 2B,* and *2C.* Samples of each chart follow. A supply of *Implementation Charts 2A, 2B,* and *2C* are included with the ARC Basic Information materials.

A separate chart is used for each topic to be assessed. The upper half of each chart records reactions to the first observation; reactions to the second observation appear below the dotted line. *Time of Observation* records both beginning and ending time of each observation period.

Arrangement of the Area

The model recommends that an organizing principle be identified and that room arrangement and the dispersal of students and teachers throughout the area be governed by that principle. Before they observe, the observers should find out what organizing principle was chosen for the implementation and what effect it was expected to have on the operation of the ARC. The observers then look for evidence of the following:

1. The organizing principle is adhered to in student groupings and the location of teachers.
2. Files, shelves, and equipment are appropriately situated for use in accordance with the organizing principle.
3. Students can get needed material or equipment without interfering with other students.
4. Teachers can move freely from student to student. Paths are open and wide enough for easy movement.
5. Teacher's desks are placed out of the line of student traffic.

Conclusions regarding all of the above are entered on *Implementation Assessment Chart 2A.*

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IMPLEMENTATION ASSESSMENT CHART 2A

TOPIC	DATE OF OBSERVATION	TIME OF OBSERVATION	PROBLEMS NOTED
Arrangement of the Area			

Instructional Materials and Information Flow

The model emphasizes both the need for an adequate supply of materials and the necessity for instructional materials to be appropriate for use in individualized instruction. Student behavior can indicate a problem with supplies. Too few items are available if numbers of students are observed moving aimlessly about while they wait for a prescribed item to become available. On the other hand, if large numbers of students constantly demand teacher attention, the observer will want to look at the instructional material that those students are using. Perhaps the materials are such that a study guide is just not enough to make them appropriate for individualized instruction. If so, those materials are inappropriate.

The model recommends that information be stored in four locations. They are:

1. A file box on the aide's desk. Enrollment/attendance cards are stored there.
2. A central file maintained by an aide. A folder for every ARC student is stored in that file.
3. A file maintained by each instructor. In this file, the teacher keeps a folder for each student assigned to him/her.
4. A folder maintained by the student and stored in student bins. This folder should contain the student's current work.

Observers check to see that all four locations contain appropriate information. One further item should be checked. Each student should have a study guide for each subject.

Conclusions regarding all of the above are entered on *Implementation Assessment Chart 2B.*

ACADEMIC RESOURCE CENTER
IMPLEMENTATION ASSESSMENT CHART 2B

TOPIC	DATE OF OBSERVATION	TIME OF OBSERVATION	PROBLEMS NOTED
Instructional Materials and Information Flow			

Human Interaction

Observation in this area is focused on those interactions that are most likely to distinguish an ARC from a traditional classroom. The assumption is made that the presence of certain observable surface behaviors is an indication that teachers and students have made a successful transition from traditional classroom to individualized instruction. The behaviors viewed as most critical are listed below. Observers note the extent to which such behaviors are exhibited and report their conclusions on *Implementation Assessment Chart 2C.*

1. Students enter, get their folders, and begin work. They spend comparatively little time in social conversation.
2. Sound level is low, although conversational hum is apparent.
3. Each student has a study guide and is engaged in the tasks prescribed.
4. Teachers seldom speak to more than one or two students at one time.
5. Teachers on duty move among students. The only teachers sitting at their desks or engaged in conversation with other teachers are those for whom it is a preparation period.
6. Students move around the room as they need to; specific permission is not needed.
7. Necessary movement is carried out so as to create the least possible disturbance.
8. Students are engaged in a variety of instructional tasks. Instructional settings vary also (e.g., student tutor working with another student, one teacher working with a small group of students, audio-visual equipment in use, etc.).
9. Students replace all materials, put their folders in their bins, and leave in an orderly manner when the period comes to a close.

ACADEMIC RESOURCE CENTER
IMPLEMENTATION ASSESSMENT CHART 2C

TOPIC	DATE OF OBSERVATION	TIME OF OBSERVATION	PROBLEMS NOTED
Human Interaction			

III. SYNTHESIZING AND REPORTING FINDINGS

When all completed *Implementation Assessment Charts* have been filed with the chairperson of the Implementation Assessment Committee, that individual compiles all findings and sends a copy of those findings to each committee member. The chairperson then convenes a meeting of the committee. At that meeting, the findings are discussed and, if recommendations appear to be in order, recommendations are formulated.

The chairperson writes the final report which is amended by the committee, if desired. Copies of the approved report are given to appropriate administrators and to the ARC teachers. Follow-up activities then become the responsibility of the administrator.